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ORIGINAL ARTICLES.

THE BACILLUS ICTEROIDES: A REPLY TO DR. SANARELLI.

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IN the issue of the MEDICAL NEWS for August 12, 1899, Dr. Sanarelli has endeavored to controvert various statements made by myself and others relative to his bacillus icteroides. No one can object to his taking such action, but it is to be regretted that he believes a personal element has obtruded itself into the controversy "as a result of the attitude assumed by Dr. Sternberg," or any one else. Actuated by this belief my eminent colleague has abandoned himself to a mode of thinking and a style of writing which is deservedly questionable in a great discoverer. A scientific publication is open to doubt and criticism as well as to unquestioning acceptance. This is especially the case when such publication does not carry within itself a complete and perfect chain of evidence.

A study of the several lengthy and painstaking memoirs published by Dr. Sanarelli failed to convince me as to the correctness of his claim and it may not be out of place to remark that some workers in other countries have formed similar conclusions. Thus, Professor Carl Fraenkel of Halle, commenting upon the investigations of Foá and of Sanarelli (*Hygienische Rundschau*, p. 1000, 1898), expresses his grave doubts as to whether the bacillus icteroides is really the cause of yellow fever. More recently, the same authority (*Ibid.*, p. 633, June 15, 1899) expresses himself to the effect that my conclusions agree fully with his views. Similar doubts as to the validity of Dr. Sanarelli's claim were expressed in France by Thoinot who questioned whether the Sanarelli, as well as the Havelburg, bacilli were not strangers to the production of the disease (*Annal. d'hygiéne Publique*, 38, p. 172, 1897). Dr. London of the Institute of Experimental Medicine at St. Petersburg, while agreeing that the bacillus icteroides is a new and interesting organism, preferred to leave open the question of its etiological relation. I mention these facts in order to show that Dr. Sanarelli's memoirs did not furnish a satisfactory proof of the correctness of his conclusions, and, that, therefore, criticism could be properly made without being actuated by other motive than a desire to arrive at the simple truth.

The resistance of the bacillus icteroides to cold has seemed to me to be incompatible with its supposed rôle as the cause of yellow fever. I take it to be an established fact that yellow fever does not spread in cold or freezing weather. Dr. Sanarelli cites Corré to show that in Baltimore and Philadelphia more than a hundred persons a week were carried off by the disease in November and December while the temperature was at times below zero. How well this is substantiated may be seen from what follows: The history of the early epidemics is by no means always clear either as to the date of their extinction or as to the exact temperature prevailing at such time. Nevertheless, such a painstaking writer as La Roche fails to substantiate the above statement as to the weekly mortality during the months of November and December. According to Rush the epidemic of 1699 disappeared by the end of October or the beginning of November ("Medical Inquiries," 3d ed., vol. iii, p. 187, 1809). The yellow fever of 1741 was arrested by cold (La Roche, I., p. 56); that of 1747 persisted into October, but on the 16th of that month Franklin wrote that it was "almost if not quite over" (*Ibid.*, p. 60). The epidemic of 1762 was arrested by the accession of winter (*Ibid.*, p. 61), and according to a letter written by Dr. Redman in 1793 it appears that the disease in 1762 declined rapidly during the first part of October, and as a result he had no yellow-fever patients after the first week in November.

With reference to the epidemic of 1762 it may be well to quote from Rush (*loc. cit.* 3, p. 188) a passage which apparently does not agree with the preceding statement. He says: "I have in vain attempted to procure an account of the time of the commencement of cold weather in the autumn of 1762. . . . I have said that it continued to prevail in the months of November and December. The register of the interments in the Friends' burying-ground in these months confirms that account. They were nearly as numerous in November and December as in September and October, *viz.*, in September 22, in October 27, in November 19, and in December 26." From this statement of Dr. Rush, which is contrary to Redman, who in 1762 was his

teacher, it appears that the disease did prevail in November and December, but in the absence of any information as to its exact nature, and as to the prevailing temperature the supposition is justifiable that, if yellow fever, it persisted during an extremely mild period.

In the great epidemic of 1793, 1976 persons died during October, while the mortality in November was only 118. The disease ceased entirely by the close of the first week in November (La Roche, I., p. 68). According to Rush (vol. iii, p. 266) yellow fever prevailed in Philadelphia during the winter of 1794 and spring of 1795, "the weather being uncommonly moderate." In ten months he treated some 200 patients, and lost only 4 (*loc. cit.*, p. 421). It is hardly necessary to state that most of the physicians of the day did not agree in this diagnosis. The occurrence of a doubtful disease during the winter months of 1762 and 1794 cannot overthrow the conclusion which all other epidemics substantiate. The outbreak of 1797 was checked by the advent of winter frost which occurred at an earlier date than in 1793 (La Roche, p. 79). Finally, in 1798, yellow fever in Philadelphia caused the death of 942 persons in October, while only 110 deaths occurred in November, and most of the victims apparently died in the first week of that month. Indeed, the epidemic was declared to be at an end on November 1st (*Ibid.*, p. 84).

According to the eminent writer, Hirsch, "a frost has brought the epidemic to an end under all circumstances whatsoever" (vol. i, p. 351). Another historian, Haeser, arrives at a similar conclusion when he states that "an epidemic may continue at a low temperature, but it is surely terminated by the appearance of a real frost."

To still further invalidate my objection as to the behavior of bacillus icteroides to cold, Dr. Sanarelli refers to examples of vessels which, infected with yellow fever, were frozen up in Arctic ice for months. I am aware of one instance of this kind, that of the U. S. S. "Plymouth," which had a not very convincing experience for a few weeks with "Arctic ice" at Boston. The vessel in question, after developing yellow fever on board, sailed on November 7th from Santa Cruz for Norfolk where it was repeatedly fumigated, and the clothing and bedding of the sick were sent ashore. The ship then proceeded to Portsmouth, N. H., where it was quarantined for seventeen days, after which it was taken to Boston. On January 8th, the crew *with their clothes and bedding* were transferred to a receiving-ship. For about five weeks all parts of the ship were exposed to intense cold, which at times was below zero. In addition 100 pounds of sulphur were burned below deck, and the berth-deck, holds, and store-rooms were thoroughly whitewashed with lime and chlorid of lime. On February 12th the crew returned to the ship, which sailed on March 15th for the Windward Islands. While still at sea, on March 22nd, yellow fever appeared and the ship was obliged to return northward. Thus, in spite of the great cold, of fresh air, fumigation, and whitewashing, the disease was not eradicated. The Board of Medical Inspectors reported that the virus of the disease must have been preserved in the rotten wood of the berth-deck, *or in the bedding and clothing of the crew* (*Sanitarian*, vol vii, p. 348, 1879). These articles, it seems, were not disinfected or exposed to cold, and it is more than likely that in this way the disease germs escaped destruction. That the yellow-fever organism may retain its vitality in clothes for many months was shown by the Madrid epidemic of 1878 (Hirsch, vol. i, p. 374), and a similar instance is reported by Bell, (*Sanitarian*, vol. xxi, p. 506), who attended a case of yellow fever in New York originating from infected clothes which were shipped three months before from New Orleans.

It cannot be denied that there have been instances, in Spain and in this country, in which the yellow-fever organisms have apparently survived the winter and, with the oncome of warm weather, have given rise to a renewal of the epidemic. This recrudescence of the disease is observed, however, only after a very mild winter. Exceptionally, it may be due, as in the cases mentioned above, to infected clothing or bedding which may have been stowed away during the winter months.

It is true that many epidemic diseases like cholera, pest, etc., diminish in virulence, and often almost disappear with the advent of cold weather. There is, however, this to be noted, that, while epidemics of yellow fever have never been known to occur in midwinter, outbreaks of cholera and pest in the coldest season have not been uncommon. It may be sufficient to cite as an illustration the cholera epidemic at Nietleben (January-February, 1893) where in spite of the coldest season the relative mortality was greater than at Hamburg in the preceding summer (Koch, *Zeitschrift f. Hygiene*, 15, p. 90). The severe outbreak of pest at Vetlianka, on the lower Volga, October, 1878—January, 1879) is a notable reminder of the fact that in the past the bubonic plague has frequently prevailed during the coldest weather.

Midwinter epidemics, such as those referred to, lead to the natural inference that the specific germ in each case is resistant to extreme cold. Hence, it is not surprising that pure cultures of cholera, pest,

and typhoid fever, should show little or no result on exposure to low temperatures. The experiments along this line are well known, and have served to establish the general proposition that cold, unlike heat, does not destroy bacteria. It is safe to say that every law has its exceptions. Dr. Sanarelli, however, would believe that because cold does not destroy the common well-known bacteria it is without effect on all bacteria. When Dr. Sanarelli asks for a single specific pathogenic germ which is not capable of enduring a low temperature he surely overlooks one that is of no little importance. This is the gonococcus which according to Christmas ("Annales de l'Institut Pasteur," vol. 11, p. 616, 1897) *"is killed in a few hours if the temperature descends below 15° F."* The gonococcus is a striking exception in the behavior of bacteria to cold and it is obvious that others may exist.

There are several theories that can be proposed to explain the complete extinction of yellow fever by the advent of cold. It may indeed be that the assumption that cold acts directly by destroying the specific germ is incorrect, but, for the present, it explains well-known epidemiological facts better than the theory of inhibition of growth which it is difficult to uphold in the case of midwinter epidemics of cholera and pest.

The behavior of the bacillus icteroides to cold together with the incomplete evidence offered by Dr. Sanarelli rendered its relation to the disease very doubtful. I am free to acknowledge that since then the evidence in favor of this organism has been strengthened by other investigators. Inasmuch as these did not publish their results prior to the appearance of my paper I cannot be said to have ignored, or to be ignorant of current literature, as Dr. Sanarelli courteously remarks.

The criticism which Dr. Sanarelli makes as to my agglutination experiments apply really to his own work and not to mine. My experiments were intended to show that serum reactions made in a test-tube with dilutions of only 1 to 5 or 1 to 10, as practised by him, were without value. When he now states that the serum dilutions should be always at least 1 to 40 he merely confirms my conclusions as to the value of his agglutination test. Ordinary perusal of the part on agglutination will show that I describe the method employed, which the familiar reader will recognize to be that recommended by Widal, and that I give the degree of dilution of normal serum at which agglutination ceases.

A similar condition of precipitancy pervades the discussion as to the production of toxin and antitoxin. I have shown that the filtered culture did not possess a powerful toxin such as would exist if Dr. Sanarelli's theoretical considerations, which it is unnecessary to recapitulate, held true. The fact that Dr. Sanarelli himself failed to obtain an antitoxic serum ("Annales de l'Institut Pasteur, 12, p. 349, 1898) corroborated my own results. If, therefore, Foá has succeeded in preparing an antitoxic as well as anti-infectious serum he has done what both Dr. Sanarelli and I have failed to do.

I am greatly surprised that Dr. Sanarelli should so misconstrue my statement that the bacillus icteroides "produces in experimental animals a disease not unlike that following infection with the bacillus coli commune," as to believe that I impugn either his good faith or good judgment. Although he has not seen fit to credit others with either of these attributes it has never occurred to me to take such a course. The statement referred to does not lead to the inference that the bacillus icteroides and bacillus coli commune are identical. I think I have made it clear elsewhere in my paper that the two organisms are different, and that it is an easy matter to distinguish one from the other. I may add further that in my "Laboratory Work in Bacteriology" (p. 356) I describe fully the bacillus icteroides which I certainly would not have done had I believed it to be identical with the bacillus coli. The changes induced in animals, however, are very much alike, and in this view I am supported by Drs. Wasdin and Geddings, who state that "the same or very similar results were obtainable by the use of other organisms of different kinds," and that when animals were inoculated with bacillus icteroides, bacillus *x*, and Havelburg, and coli commune "necropsies upon these revealed similar conditions of the organs" ("Public Health Reports," No. 33, p. 1305, 1899).

The latest studies on yellow fever may have revealed the presence of the bacillus icteroides in most of the cases examined. I am not aware, however, that Dr. Geddings has isolated it in seventy-nine cases. In his preliminary report ("Public Health Reports," No. 45, p. 1272, 1898) he tabulates his results showing that of sixteen cultures examined, not cases, thirteen were positive. In the abstract of the final report (*Ibid.*, No. 33, 1899) Drs. Wasdin and Geddings report upon twenty-two cases. They concurred in the diagnosis of fourteen of these, and succeeded in isolating the bacillus icteroides from each of these cases, but failed in the remainder. Evidently a slight error has crept into this statement.

The recent detection of the bacillus icteroides in a considerable number of cases of yellow fever, and, moreover, its probable absence in other diseases has given this organism a much needed support. Per-

sonally, I shall be pleased if the final report of Drs. Wasdin and Geddings will furnish incontrovertible evidence as to its specificity. Such is my attitude on this important question, and as a seeker of truths I trust I may ever be open to conviction when indisputable proofs are offered.

INOCULATION THROUGH THE DIGESTIVE TRACT: A CONTRIBUTION TO THE YELLOW-FEVER DISCUSSION.*

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THE discussion as to the relations between the bacillus of hog cholera and Sanarelli's bacillus icteroides has attracted a great deal of public attention of late. The settlement of the points at issue in the matter rests to a large extent on the question of inoculation of infectious material by way of the digestive tract. It has seemed to me opportune, then, to discuss the question of the difficulty of inoculation by this method, and the true value of experimental results obtained in this way.

In his recent answer to Sanarelli[1] Dr. Sternberg insists on the serious significance of the results obtained experimentally by Drs. Reed and Carroll[2]. These observers noted in the case of three hogs the characteristic lesions of hog cholera after they had fed the animals on warm cultures of bacillus icteroides. In a more recent article (MEDICAL NEWS, September 9, 1899) Drs. Reed and Carroll themselves reaffirm their former conclusions as to the identity of lesions produced by the bacillus of hog cholera and by the bacillus icteroides when inoculation takes place through the digestive tract. On the other hand, Drs. Wasdin and Geddings[3], having employed exactly the same experimental method, reach directly opposite conclusions. They say, first, that the domestic hog is incapable of infection from the bacillus icteroides when the latter is introduced through the intestinal or digestive tract; and, second, that the bacillus icteroides when fed to pigs will not produce any of the lesions or intestinal symptoms of hog cholera.

I think that I shall be able to show a little farther on that Dr. Sternberg's declaration on the strength of the researches of Drs. Reed and Carroll that the bacillus icteroides and the bacillus choleræ suis are practically the same micro-organism is made without sufficient evidence. As far as regards the anatomical lesions observed by both parties, however, though it may seem a paradox to say so, I believe that both may be perfectly correct in their declarations, though I hold that Wasdin and Geddings are surely right in their assertion that the infection of the domestic hog in their experience is impossible by the method pursued of feeding the bacillus icteroides to the animal.

It is an elementary principle in bacteriology when there is question of the inoculation of pathological material or of bacterial cultures that after the selection of an animal that presents the greatest susceptibility toward a given infectious material, the next most important thing is the determination of the best mode of entrance of the latter into the animal tissues. How important this matter of the "best port of entry" is may be judged from certain well-ascertained facts. The staphylococcus, for example, inoculated beneath the skin of a guinea-pig produces nothing more than a local abscess, while injected subcutaneously it produces a fatal pyemia. Tuberculosis pursues a very different course according to the various regions into which it may be inoculated. Chaveau and Arloing were able to inject with impunity as much as 162 c.c. of a culture of a septic vibrio directly into the vein of a dog, while a few drops of the same culture injected under the skin infallibly killed the animal.

At a time that is not very long past inoculation by way of the digestive tract seemed the most obvious thing in the world. It was even believed that many microbes found their way into the system by the mouth. But at the present time, on the contrary, the comparative study of microbes and of the constant struggle for life going on among them in certain of their habitats has demonstrated that inoculation by the mouth, apparently the simplest mode of infection, is in reality the most difficult and complicated. For the bacteriologist who would inoculate through the gastro-intestinal tract there is a series of obstacles that he must overcome which, so far, bacteriology has not succeeded in entirely getting rid of. There is the digestive activity of the gastro-intestinal tract itself, the predilection of the microbe very often for the intestinal contents rather than the tissues, the failure of receptivity on the part of the animal to a given microbe at a given moment, and finally the influence of the microbic flora already present in the intestine.

Koch administered opium to his animals when inoculating with the cholera vibrio by the mouth because it paralyzed the gastro-intestinal activity, or he gave them alcohol in order to set up a gastro-intestinal catarrh, and so lessen the vital resistance of the tissues. Emmerich did the same thing when

*Translated.

†Dr. Vitale was a student with Professor Sanarelli at Montevideo, Uruguay, at the time the latter was carrying on the investigations which resulted in the announcement of the discovery of the bacillus icteroides.—Editor.

experimenting with his bacillus Neapolitanus. Metchnikoff, besides the two methods already mentioned, alkalinized the gastric juice. Notwithstanding these precautions, the results in all of these experiments were often inconstant. The question of the lack of receptivity needs but to be mentioned, and the same holds true of the predilection for certain materials.[4] Strauss fed the sputa of tuberculous patients in large quantities to hens without a single one of them acquiring tuberculosis, and we know that it would be absolutely useless to attempt to inoculate a bacillus such as that of Nicolaier by the mouth, for even when inoculated beneath the skin it needs the assistance of certain microbes that favor its growth by overcoming for it the resistance offered at first to its invasion by the phagocytes.

The antagonism, vital as well as chemical, of one set of microbes for another deserves even more attention than any other factor which prevents their invasion of the animal organism if we would understand the reasons for the failure of inoculations by way of the digestive tract. Kitasato first called attention to this subject but Metchnikoff's experiments are so much more complete that we shall quote from them. Metchnikoff[5] inoculated plates of gelatin with the vibrio of cholera. The following day, after noting that none of the plates showed the presence of any culture, he exposed some of them to the air, and inoculated the surface of the others with various microbes. Some of the microbes implanted later favored while some hindered the development of the cholera vibrio, while others completely destroyed it and prevented it from growing.

He noted in subsequent experiments that certain microbes were able to prevent the growth of the cholera germ, not only in their own vicinity under ordinary circumstances, but even when it was growing along with a microbe that usually favors its growth. For instance, a plate of gelatin after being inoculated with the cholera vibrio was further inoculated in two crossed lines with a microbe that was known to favor and another that hindered the growth of the germ of cholera. Cholera microbes grew luxuriantly along one line, but not at all along the other. The nearer the approach to the point at which the lines crossed the fewer the colonies of cholera germs. At the intersection, and for some distance around it, no colonies of cholera vibrios were to be found at all.

Metchnikoff succeeded in isolating from the stomach various microbes which favor the growth of cholera germs. In the first place a torula, which he found in the stomach of a hypopeptic individual, then a sarcina isolated from the stomach of another person, and finally a form of bacterium that does not liquefy gelatin. Microbes with the opposite power, *i.e.*, able to prevent the development of the cholera vibrio and even destroy it, have been isolated from the intestine. But not only does there exist a vital antagonism and a symbiosis among microbes, but there is also a chemical antagonism not difficult to demonstrate. This will cause a nutritive medium to especially favor the growth of a microorganism at one time and absolutely prevent it at another. A culture medium that has sustained the growth of one set of microbes will present conditions favorable or unfavorable for the growth of succeeding microbes quite different from those which it originally possessed before any microbic life had been nourished in it.

If the staphylococcus aureus is allowed to develop on slanted gelatin for three days in a brood-chamber it will at first liquefy the gelatin, then it will sterilize the medium by its own products and the gelatin will solidify as before. If tubes so prepared are now inoculated anew with the colon bacillus, the proteus vulgaris, and the bacillus icteroides, it will be found that the last does not develop at all, the colon bacillus does develop, while the proteus vulgaris develops with great luxuriance. On the other hand, where proteus has grown the staphylococcus aureus scarcely grows at all, the colon bacillus presents only traces of development, and the bacillus icteroides absolutely refuses to grow. Where the bacillus icteroides has lived all the other types of micro-organisms mentioned grow very well, most abundantly of all the proteus vulgaris.[6]

Because of the difficulty of placing a microbe that is being experimented with in conditions that will favor its growth, inoculation through the digestive tract has always given inconstant results. The vital and chemical antagonism of microbes always make it a most difficult problem, except where the experiments have been conducted in association with other means that favor the object desired by the bacteriologist.

Let us examine a few of the microbes which, either because of their immediate pathological effects or because of their being able to resist the action of the gastric juice, are able to gain a foothold in the gastro-intestinal tract. The cholera vibrio is able to traverse the acid stomach and also to preserve its vitality for a longer or shorter period in the intestines without producing cholera. Animals that are very susceptible to cholera when the germ of the disease is injected intraperitoneally can absorb large amounts of the same culture by the digestive tract with absolute impunity. Metchnikoff could not produce cholera in rabbits except by taking the very young suckling animal and inoculating it at the

same time with certain microbes that favor the development of the cholera germ. Once the little rabbit had begun to live on ordinary forage, it was impossible to produce intestinal cholera in it, even with the aid of all the microbes that favor the growth of cholera vibrios that he had succeeded in finding. Rabbit mothers are well-known for their custom of eating their little ones when they see them moribund. From among a number of young rabbits in which Metchnikoff had produced intestinal cholera, three were eaten by their mothers after examination of them had disclosed their infection with cholera. The health of the mothers did not, however, suffer in the least.

To a young rabbit was administered a quantity of the contents of the cecum of a patient dead from cholera. This did not, however, contain any of the microbes that especially favor the growth of cholera. The animal did not take cholera, though it is needless to say that the intestinal material given to it to eat was swarming with cholera vibrios, so that Metchnikoff concluded that even the young suckling rabbits take cholera by the gastro-intestinal tract only when the germ of the disease is associated with certain microbes favorable to its growth.[7]

Strauss had heard that the veterinarians attributed "morve" in horses to contagion through the food. He cultivated the bacillus, demonstrated its virulence when injected intraperitoneally into guinea-pigs, but though he inoculated a large number of them he was not able to produce the disease by way of the mouth.[8]

It is well known that pest is eminently virulent when inoculated into mice and rats, yet when cultures of the bacillus or portions of the liver and spleen of animals dead of the disease are fed to them, while they often contract the disease that does not always happen. Mice that have often resisted food contaminated with pest bacilli, succumb at once to subcutaneous inoculations of the germs. Even these experiments of successfully inoculating animals with pest by the digestive tract, must be done with material that comes direct from cases of the disease in human beings or at least must not have undergone passage through more than two or three animals.[9]

It is so well known that it scarcely seems necessary to recall the fact that the bacillus tuberculosis can find a nidus for growth in all the organs and tissues, and that there is no animal known thus far to be refractory to the disease. In the laboratory it is ordinarily the guinea-pig and the rabbit that are selected for experimental work in tuberculosis because of their susceptibility to the disease, yet Harris and Gunther, by feeding rabbits with tuberculous flesh, succeeded in producing tuberculosis in but 2 out of 4 animals experimented with. Gerlach fed 35 animals altogether with tuberculous meat, yet only 8 were attacked by the disease. Johne fed 46 animals of different species with tuberculous material, but was able to demonstrate tuberculous lesions in only thirteen per cent. of the animals at autopsy. Nocard fed eleven cats with tuberculous flesh, but was able to find no lesions of the disease after the death of the animals. Peuch found that he had to feed at least 5 kilograms (11 pounds) of tuberculous flesh to little pigs if he wished to be reasonably sure of their having a general tuberculosis at the end of three months. All of these authorities are cited by Arloing, and scarcely tend to prove that it is easy to convey a contagion by the mouth.[10]

The animal that is most susceptible to the bacillus icteroides is the rabbit, which succumbs to the minutest intravenous injection of a culture of the bacillus within forty-eight hours at the longest, and dies infallibly from a subcutaneous injection in from four to five days. Notwithstanding this extreme susceptibility to the bacillus icteroides, I have myself on a number of occasions fed rabbits large quantities of warm cultures of the bacillus without being able to kill them, or even without being able to make them sick. I used three tubes of 10 c.c. of culture each, enough material to kill a great many of the animals if given subcutaneously. I suppose that it is because of this inconstancy of results in giving cultures by the mouth that Sanarelli does not even make mention of this form of experimentation. As for my own experiments with this method, I scarcely preserved the record of them for myself, and certainly did not think that an opportunity would come for publishing them.

It must be borne in mind, however, that Drs. Reed and Carroll, having fed little pigs with the bacillus icteroides, noted in two of them after death the characteristic lesions produced by the bacillus of hog cholera. What explanation can be given for this fact, especially when we consider it in the light of the exactly opposite results obtained by the same method by Drs. Wasdin and Geddings? The bacillus of hog cholera is a saprophyte so constantly present in the digestive tract of the hog that Smith[11] found it in the saliva of the animal, and inoculated with it without producing any pathogenic effect. Salmon, its discoverer, admits that there are a number of varieties of the bacillus, some more saprophytic than others. Loeffler, Cornil, Chantemesse, and Silberschmidt, while they admit that it can give rise to formidable epidemics, have found

it also in isolated cases.[12] Moore places it in the group of the colon bacillus,[13] and Smith advances the opinion that any other affection which weakens the organism of the hog and lowers its resistive vitality may permit the microbe to penetrate into the tissues and set up the disease, and with it an epidemic. Though it may seem far-fetched to admit this power of penetration on the part of the microbe, the fact remains that any debilitating cause may set up symptoms of the disease in certain neighborhoods, and the lesions of hog cholera be found at the autopsy.

I have not been able to study the symbiotic relations that exist between the bacillus icteroides and the bacillus of hog cholera. Knowing as I do, however, the intimate relationship which exists between the bacillus choleræ suis and the colon bacillus I think it would not be difficult to foresee what would happen when the bacillus choleræ suis and the bacillus icteroides were set growing side by side, for the bacillus icteroides, it is well known, favors the growth of the colon bacillus, and might be expected to do the same for the bacillus of hog cholera. A non-virulent colony of hog-cholera bacilli might, under the influence of the symbiosis existent between it and the bacillus icteroides, become malignant and productive of pathological lesions where it was but a harmless parasite before.

Vincent has shown[14] that the most innocuous saprophyte can become very virulent under certain conditions. He took, for instance, the bacillus megaterium and the bacillus mesentericus vulgatus (a form of potato bacillus), and changed them from harmless to extremely active pathogenic bacteria. When inoculated into animals in their primitive condition they produced nothing but a trifling and very temporary rise of temperature. When Roux's method of cultivation was applied to them, which consists in growing them enclosed in a small collodion sac enclosed in the peritoneum of animals, they soon became virulent. When grown this way, as the phagocytes have no chance to get at them in order to neutralize their virulence, they take on pathogenic properties, which gradually become intensified. After this continuous growth for some time in collodion-sac cultures, 4 drops of a culture of the bacillus megaterium killed mice in from ten to twenty hours, killed a guinea-pig weighing 450 grams in twenty-four hours when injected intraperitoneally, and in from two to four days when injected subcutaneously, while a rabbit weighing 1850 grams was killed in twelve hours by an endovenous injection. Vincent showed also that this microbe was modified by the presence of other micro-organisms, and grew much more luxuriously in the presence of a sterilized culture of the bacillus pyocyaneus or of the bacillus coli communis.

Under the circumstances the conclusion of Drs. Reed and Carroll that the bacillus icteroides is a variety of the bacillus of hog cholera seems, to say the least, precipitate. Experimental inoculation of a microbe by way of the mouth is a most insecure method, and conclusions drawn from results thus reached require the most careful examination before they can be accepted. All of the factors that I have mentioned as liable to modify the course of inoculations through the digestive tract must be taken into account or the conclusions will be liable to serious error.

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SOME SURGICAL ASPECTS OF SYPHILIS.

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IN writing a paper on this subject I feel that I must confine myself to my own experience and limit it to a description of those organs involved by syphilis which have come under my observation, rather than to attempt a collective article upon all organs which have been described as involved, and in which the failure to recognize the disease has been made. On this account I limit myself to the manifestations of syphilis occurring in the muscles, sheaths and tendons, bursæ, bones, joints, lymphatic glands, and rectum. I do not include any of the parasyphilides as compared with the syphilides, *i. e.*, manifestations of disease occurring in syphilitics in which the syphilis is not absolutely and necessarily the cause, and in which mercury and iodid of potash do not show their curative effects as in syphilis proper. The syphiloma (granuloma, gumma) resembles in growth and existence a simple specific inflammation, yet it demands a special interest of the surgeon, in that he not infrequently has

[1] Read at a Stated Meeting of the New York Academy of Medicine, held March 16, 1899, in a discussion on syphilis.

mistaken it for other neoplasms, and has subjected his patient to operative interference not always devoid of danger. Some of our most eminent surgeons have removed ulcerated gummata or tubercular syphilides of the lip and tongue for carcinoma, syphilitic gummata and ulcerating syphilides of the lip for labial cancer, gummatous ulceration and infiltration of the rectum for carcinoma. This danger is an ever present one to the surgeon to whom these cases are referred as malignant tumors requiring removal, and who, failing to identify any intermediary manifestation between the primary infection and the present lesion, or because of a too confiding belief in the history of the patient, which may be in error owing to shame, forgetfulness, or ignorance, believes them malignant processes without further investigation.

The tongue, a muscular organ, is the favorite seat for the granuloma of syphilis, and when the process is a diffuse infiltration with involvement of the mucous membrane and ulceration but little difficulty may exist in properly ascribing the cause. When, however, a gumma is circumscribed and exists deeply within the muscles of the tongue over which as yet the mucous membrane is intact, there is no reliable objective symptom by which one is able to differentiate between some abscesses, sarcoma, fibroma, and primary tuberculosis and actinomycosis; and the mistake has been made and recorded in literature again and again. Again, the presence of a granuloma in the tongue originating from several confluent foci although characteristic, for syphilis has been mistaken for carcinoma, especially in those cases in which no intermediary symptoms have been present, an exact diagnosis is often rendered difficult since in the majority of lingual cancers chronic inflammatory conditions and ulcerations are precedent to the carcinosis. Syphilis, so frequent in the tongue, especially in the form of neglected and unhealed syphilides, is a frequent precursor of the presence of cancer, and in several instances (quoted by Von Langenbeck) the gumma and the cancer have apparently appeared at the same time. The diagnosis is again obscured by the fact that many epithelial growths which cannot be distinguished from epithelioma in their histologic appearance are apt to be added to neglected and unhealed syphilides or lupus, in which appropriate treatment and the local removal of the epithelial growths are curative.

The lesions involving the muscles generally occur in the late varieties of syphilis, and either appear as a circumscribed mass or as a diffuse connective-tissue induration with or without disseminated gummatous foci, varying in consistency according to the relative amount of cellular constituents and interstitial inflammation. Its growth, whether slow and painless or rapid and painful, is attended by a more or less constant contracture of the muscle. It is situated usually at the juncture of the muscle and tendon, and varies in size from that of a walnut to a fist. The syphiloma selects most frequently the sternomastoid, and less frequently the masseter, cervicalis, tibialis posticus, the peronei, the triceps and biceps-brachii, biceps femoris, the infraspinatus, antibrachius, the pectoralis major, vastus internus, and the adductors of the thigh. Though these muscular lesions generally occur in several foci or in several muscles in some cases of the acquired variety after thirty to forty years, and in the hereditary and late hereditary syphilis, a single circumscribed lesion is the only manifestation, and a difficulty in diagnosis is at once presented. Though such a single circumscribed lesion is rare, it represents, according to Esmarch's experience, one-half of all the so called tumors of muscles.

Syphiloma in muscle has a great surgical interest since it attains good size and may easily be mistaken for a tumor. Langenbeck saw two inches above the clavicular attachment of the sternocleidomastoid muscle a gumma the size of a pigeon's egg. There were present in addition a pustular eruption and a gummatous orchitis. Had it not been for the constitutional symptoms present Langenbeck says himself it would have been difficult to differentiate from a fibrosarcoma. Virchow also saw a gumma the size of a fist in the trapezius muscle. Ricord recorded one in the tibialis posticus muscle the size of a pigeon's egg. Prescott Hewitt noticed in the adductor muscles of the thigh of a man thirty-five years of age a deeply seated, lobulated, and distinctly marked tumor. It had grown from a small nodule, and recently had grown more rapidly. All syphilis was denied. Inguinal lymphomata began to appear. Suspicion was at once aroused as to the character of the disease. The tumor disappeared under the use of the iodids. Senftleben saw a large gumma of the infraspinatus (six to eight inches) appearing as a sarcoma of the scapula. Although the patient had had chancre eight years before it was extirpated and the neck of the scapula sawn off. Microscopic examination showed it to be granulation tissue involving the whole muscle so that its nature was plain. Similar to this case is that of Langenbeck, in which a large gummatous tumor of the scapula was confounded for a time with a lipoma in a patient who denied syphilis and in whom Langenbeck found a gummatous testicle and post-chancral scar. Langenbeck also found in a thirty-six-year-old man, in the biceps brachii (lower one-third), a gumma the size of a walnut, which was

rapidly growing, painful, and not adherent to the skin. Infection was denied. Before an operation for sarcoma potassium iodid treatment was instituted. The tumor disappeared. Esmarch saw a healthy man of fifty, who for eight months suffered from pain in the tongue following talking and eating. Six months previously he noticed a nodule in the tongue on the left side. The rest of the tongue was healthy. Infection thirty years before with no subsequent manifestation. Cured with mercury and potassium iodid.

Of the infectious processes in muscle tuberculosis without other real marked manifestations is rare. As a primary process in muscle it is rarer than syphilis. As a secondary process and confined to the abdominal muscles and the tongue it is quite as frequently seen.

Tuberculosis in the tongue and elsewhere occurs either as a lupus, a miliary tuberculosis, a gumma, or an ulcer. The gummata occur principally in men. They either follow a primary organ involvement elsewhere or appear as a primary involvement. They exist beneath the mucous membrane and may remain three weeks to three years before softening in the center and forming an ulcer. No severe pain is present until ulceration takes place. Bacilli are seldom found in the discharge. Fourteen cases of this nodular form are described by Volkman, in five of which the disease was primary and in the rest it accompanied a phthisis pulmonum. The infection in these primary cases seems to come from the blood or lymph vessels and not from the sputum as in lingual ulcers. Cold abscesses, made up of confluent tubercular foci with glandular enlargement and phthisis pulmonum, have been reported sixteen times as occurring in the tongue.

The two varieties of tuberculosis of muscle—the gumma and the abscess—demand a diagnosis in the first place between tuberculoma, syphiloma, sarcoma, and a benign solid tumor. In the second place we must differentiate between a tubercular abscess, a congenital cyst, or an echinococcus cyst.

Actinomycosis and farcy scarcely concern us here as the involvement of the muscle in the first is secondary to that of bone, intestine, or lung, and in the latter, the distinctive and rapid course of the disease before muscular involvement as well as the manner of involvement allow an easy distinction. Moreover, here as in tuberculosis a bacteriological examination is decisive.

Tumors of muscle are at the best rare. Of these, the lipoma, the enchondroma, the osteoma, the fibroma, and cavernous angioma have been seen. Of these tumors of muscle the angiomata, situated in or beneath the deep muscles of the neck (their predilection place), present the greatest difficulty since their slow growth, their want of pulsation, their unalterability in volume during respiration render them very like lipomata, cold abscesses, lymphomata, or syphilomata. The lipomata of the tongue have been reported to the number of eighty, and their location has been almost invariably at the tip of the organ. The location, the softness, the yellow color, and the mobility of the mucous membrane over the tumor renders the differentiation from cysts and benign processes an easy matter. Congenital cysts and echinococcus cysts of the tongue are such great rarities and bear so few points of resemblance to the other tumors mentioned as to be left out of account. The sarcomata of muscle, however, are much more common and have been reported to the number of thirty-five. Undoubtedly many of the old statistics include a large number of gummata reported as sarcomata since fully one-half of all gummata seen by or sent to Esmarch as such were sarcomata and were cured by mercury and potassium iodid.

In the smaller cerebral arteries a circumscribed or diffuse obliterating endarteritis is not uncommon in the acquired variety. In the hereditary variety as a small solid infiltration of the adventitia of the vessels it is not infrequently seen in the bones and the viscera. Such a process is frequently seen in the larger arteries and usually leads to an obliteration of the lumen of the vessels. This process involving the arteries of the extremities may lead to gangrene and thus acquire surgical interest. In other cases where this process exists in the larger arteries it results in the development of aneurism or of a circumscribed or diffuse gummatous infiltration about the vessel.

In the former case where an aneurism is present, unless it be completely obliterated the differentiation will depend upon its multiplicity, its occurrence in early life, and the fact that sixty-nine out of every hundred subjects have syphilis as a cause. In the cases in which the process consists in a diffuse or circumscribed infiltration about the vessels, and in the exception to the former class, the mistake most frequently made has been to consider it a fibroma, fibrosarcoma, or neuroma. In the veins circumscribed gummata are not seen, though diffuse processes are known in a few instances. In all cases, the process has been an obliterating one, and the veins most frequently involved have been the portal, the femoral, and the internal jugular. The fact that this infiltration about the vessel has appeared years after infection and has, moreover, formed about the vessel a distinctly circumscribed

mass has resulted in attempts at removal of the process for a tumor.

Two cases have been reported by Greenhow as involving the femoral vein. One has been reported by Schüppel in the portal vein and Langenbeck has reported two cases, one in the common jugular vein, and one in the femoral vein. In both of Langenbeck's cases it was very observable that the infiltration formed a distinct mass about the vein, and in neither involved the accompanying artery but pushed it aside. In both cases the granuloma seemed to begin in the external and adventitial coat, although the internal coat was soft, friable, and had attached to it a completely decolorized thrombus, almost occluding the lumen of the vein. The first was one of a female of fifty-six years of age, the mother of eleven children, six of whom died of constitutional syphilis, and five of whom were living. There had been no evidence of syphilis for fourteen years. There was present a fusiform mass surrounding the common jugular vein. Extirpation of a mass including the vein for an extent of six centimeters. Diagnosis: sarcoma. Three years later gummata appeared upon the tongue and cheek which were cured with mercury and potassium iodid. Another case was in a female, forty-two years of age, who four years after infection, with very few intermediary symptoms, principally exanthemata, observed a mass growing slowly in the inguinal region. The mass was a fusiform one, involving and apparently surrounding the femoral vein. Although the diagnosis was made the mass including the vein was removed. A microscopical examination showed the tissue to be pure granuloma with many small cells showing a greater tendency to disintegration (fatty degeneration and detritus). The difficulty and the ease with which a diagnosis can be made is clearly exemplified in these two cases of Langenbeck.

The lymphomata occur as unusual lesions both in the acquired and in the hereditary variety. Clinically these glands may be either hard (sclerosis), or soft (gummatous). Though confined generally to a few chains of glands in the acquired variety they may, if hereditary, involve the mesenteric, lumbar, iliac, inguinal, thoracic, and cervical chains. Hence in some cases both in the hereditary and in the acquired varieties a differential diagnosis must be made between the lymphomata of syphilis and those of tuberculosis, of pseudoleucemia, of lymphosarcomatosis and those of carcinoma. Such cases have been repeatedly recorded by Esmarch, Verneuil, Ricord and Hutchinson, and their recitals are well known in literature. In 1880 Cunningham of Glasgow reported an interesting case of a man, aged thirty-five, who six years before had been infected. Four years after the infection and without intermediary symptoms the glands of the right side of the neck, thorax, and axilla became swollen, while those upon the left side were only slightly involved. The inguinal glands upon the right side were also much involved. The tumor in the neck measured 14 x 12 inches and was made up of soft, though normally shaped and enlarged glands. The condition at this time was thought to be either a pseudoleucemic lymphadenomata (Hodgkin's disease) or syphilitic lymphomata. Mercury and the iodid of potash was administered and within one month the tumor had gradually disappeared and the remaining glands were smaller.

Wunderlich had an exactly similar case and it is very probable that the cases reported by Billroth and Czerny as cured with arsenic were syphilitic lymphomata.

Two such cases have been observed by the author. The first case concerned a woman thirty-two years of age with acquired syphilis of seven-year's standing. Three years from the time of her primary lesion gummata of the lip appeared which were recognized and treated with inunctions of mercury and iodid of potash. Two years later lymphomata of the neck involving the submaxillary and deep carotid glands of the left side and the axillary glands upon the right side appeared. The cubital and occipital glands were only slightly enlarged. Some of these glands were soft and gummatous to the touch. Some were broken down and partly ulcerated, while others felt hard and stony. Under inunctions of mercury and the iodid of potash they disappeared, excepting those in the submaxillary region, which seemed hard and sclerotic. They were excised and under microscopic examination were found to be in a condition of sclerosis and calcification.

In another case, a man of twenty-eight years, with acquired syphilis of six-years' standing with intermediary symptoms (exanthemata and skin gummata) presented lymphomata of the deep carotid and submaxillary chains upon both sides of the body. These glands were soft, rapidly growing and had been present for a period of two months. Under iodid of potash and mercury these tumors diminished in two months so as to be scarcely observable. Within six months the glands had entirely disappeared. He neglected treatment, however, and within a year returned with an enlargement of the same glands without ulceration, which under treatment again disappeared within a period of two months. Such a case, had the history not been known, would have given one the impression of a malignant lymphoma (pseudoleucemic lymphomata) since the examination of the blood showed nothing more than a

leucocytosis and no tubercle bacilli. Molliere, Casati, and others have called attention to this class of diseased glands in syphilis. Doyen himself has reported eight cases of hereditary syphilis in which four were attended with lymphomata involving more than a single chain of glands. In no case was there any breaking down of tissue except where the integument over them was involved. Occasionally these glands become enlarged, soften, break down and leave an ulcer with a hard, indurated edge and a gummatous and adherent base. Such glands may be mistaken for tuberculosis, but the ulcer in these is distinctive as its edge and base shows, or when healed it has an enlarged, adherent cicatrix with its areola of pigment. The deeper glands habitually suffer in hereditary syphilis; such glands as the lumbar, iliac, femoral, and mesenteric. They never suppurate. They occur in the form of an intestinal adenitis by which the glandular cells atrophy and the connective tissue increasingly contracts, or by a proliferation of these cells a soft, and more rounded shape is given them.

It is owing to these two conditions within the gland, when the process is not limited to a single chain of glands that the disease will so closely resemble lymphadenomata or lymphosarcomatosis. Treatment with iodid of potash and mercury as well as a histologic and bacteriologic examination will be required to decide the character of the case. In pseudoleucemic lymphadenomata as well as in the lymphosarcomata, the want of syphilitic manifestations and the anemia present, together with softness and rapid growth of the glands without ulceration, will generally suggest a diagnosis.

Leucemic lymphomata, however, and the enlarged spleen and lymphatic glands of hereditary syphilis may be easily confounded unless an examination of the glands and of the blood prove the case to be one or the other. The only reliable differential diagnostic point is the blood examination. In the lymphosarcomatosis no difficulty exists in a differential diagnosis so different is the course of the two diseases. In the tubercular lymphomata the course as compared with syphilis is slow and painless. The ulceration occurs slowly and gradually and the distinction may thus be easily made from the development of the gland and the character of the ulceration; but as some cases of tuberculosis resemble so distinctly pseudolymphadenoma that they can only be distinguished by the examination of the blood, so they must be also distinguished from some of the syphilitic lymphomata. This also requires a blood examination.

The chronic hyperplastic lymphomata, which are rare, as well as the lymphomata following carcinoma, in which the primary carcinoma is not seen or observed, are the most difficult of all the cases to differentiate from the chronic sclerotic lymphomata of syphilis.

As a part of the lymphatic system I include here the tonsil. The tonsil as the seat of the primary lesion is not rare. Less frequent, but of more importance, however, are the ulcerations existing in the tonsil, the result of gummata either in the acquired or hereditary variety. In these cases it often becomes a most important question to distinguish between a true neoplasm and the syphiloma.

Of the new formations within the tonsil, syphilomata and lymphadenomata are by no means rare, and are by many considered to be more frequently found than lymphosarcoma and epithelioma. It has been my good fortune to see such a case with the late Dr. Jarvis of this city. A man, thirty-five years of age, having acquired syphilis fifteen years previously, and having no observable secondary lesion, presented himself to Dr. Jarvis for treatment of a quinsy sore throat. The tumor existed upon the right tonsil, was hard and indurated in spots, and soft in others. It was not ulcerated. It had persisted for a period of two months. The glands in the neck (submaxillary and deep carotids) were slightly enlarged. His treatment previously had been puncture, with partial excision and astringents. As no benefit occurred and the ulcer did not heal he presented himself to Dr. Jarvis for treatment. The ulceration present was one with fungous granulations. It had at its base a grayish discharge. The tonsil itself was enlarged, indurated, hard, and nodular. A consultation was had in which two of our best surgeons were present and recommended an immediate removal of the growth, their diagnosis being sarcoma. Owing to the danger and fear of the operation the patient for the first time admitted the history of his previous infection and some unmistakable lesions. Mercury and iodid of potash were immediately administered, and his disease was cured within two and one-half months.

The Breast.—The early manifestations of syphilis of the skin over the breast are not infrequently seen. The gummata existing within the breast, however, have only lately been conspicuously brought forward. Hennig, Abrosoli and Sauvages, Maisonneuve, Verneuil and Chever mention in all eight cases, but without particulars of the exact condition, although distinctly syphilitic and acquired.

Steng gives an account of a tertiary syphilide of the breast removed for cancer in a woman fifty years of age. The infection occurred twenty-eight years before. She was continuously treated with iodid of potash, but four years before her breast was

amputated for cancer. In the scar there appeared subsequently two hard almond-sized gummata. In six days they disappeared under treatment with iodid of potash. The proper inference to draw in this case is that the disease in the breast was a syphilitic gumma and not a cancer, as it is characteristic of syphilis to return in the character of a syphilide.

To Lancereaux and Langenbeck belong, however, the credit of accurately describing the involvement of this organ in its two distinct forms. (1) The simple syphilitic mastitis. (2) The gummatous syphilitic mastitis. Lancereaux describes three cases. The first variety is seen in both sexes. The gland itself becomes swollen and tense. The skin over it is not involved. The disease is apparently an interstitial process which in this stage presents nothing more than the feeling of enlargement and tenseness. It occurs in the second stage of syphilis, and may undergo under treatment a complete resolution. This process, when it becomes chronic and is attended by the formation of new connective tissue, may subsequently undergo contraction and give the appearance of what was formerly described under the name of deforming chronic mastitis without suppuration (Billroth).

The second variety exists as a hard lump, varying from the size of a pigeon's egg to a goose egg, within the breast. It produces little or no pain, and may continue for a long time without softening or may break down and form an ulcer which is characteristically syphilitic, that is, a hard, indurated border with fungous granulation tissue, on the surface of which there are gray adherent sloughs. This variety of mastitis may occur as a single lesion of an old syphilis or may be co-existent with other lesions of syphilis. Richet found such a case without any other manifestations of syphilis than the primary infection and cured it easily with the iodid of potash. Steers saw one without the manifestations of syphilis and operated upon it for cancer. An examination microscopically revealed the syphiloma. This disease though rare may be confounded quite naturally with tuberculosis which is also a rare disease here.

There are at present about forty-seven observations of this character. In twenty-three the tubercle bacilli were found. In twenty-four the histology was alone the diagnostic point, and of these twelve cases were primary and without other manifestations of tuberculosis; the rest were co-existent with other tubercular manifestations. The course of the process was painless, and the disease was only accidentally discovered. In one-half of all the cases the axillary glands were enlarged in the earlier stages. So long as a swelling alone in the breast is felt a distinction between syphiloma and a new growth is difficult. The probability arises when softening occurs and a cold abscess is present. The chronic course, the softening and the absence of other manifestations are the best signs for diagnosis, but these are not entirely positive as was shown in the case of Habermass. A woman forty-seven years old, the mother of fifteen children, had suffered from a painful, hard, indurated mass in the left breast for one year. It had gradually enlarged to the size of a hen's egg. The skin over it was not involved. The axillary glands were enlarged. An incision made into the mass evacuated a cheesy looking pus. The wall of this mass was indurated, not distinctly circumscribed, but losing itself in the neighboring portion of the process. Although macroscopically this appeared to be tuberculous, a microscopic examination of the wall of the cyst showed it to be a mammary carcinoma with abscess formation in the center, that is, an endocystic carcinoma mistaken for tuberculosis on account of its contents and its cystic formation.

Two cases which have come under my observation represent these two diseases very well:

CASE I.— A female, aged thirty-seven years. Syphilis at twenty-five. Nine years after the primary infection she presented herself with a nodule situated on the right side and in the upper and outer quadrant of the breast the size of a hen's egg. She had noticed it for about three weeks. It was painless. The axillary glands were slightly enlarged; the post-occipital and cubital could be felt. It was a mass of an even consistency and was not broken down. The skin over it was absolutely uninvolved and the mass was circumcribed within the breast. In the previous history of the case the administration of iodid of potash had been followed with success. It would have been very easy, not knowing the history and not having examined the woman more carefully than is usually done, to have considered it a carcinoma and to have recommended an operation. As it was she was cured without operative interference.

CASE II.—A female, aged twenty years, entered the Roosevelt Hospital complaining of a tumor in the right breast which was painless and had been noticed only a week previous to that date. The skin over the mass was uninvolved. The growth was about the size of a pigeon's egg. It was situated completely within the breast and the breast seemed to be infiltrated about the mass. It was adherent and distinctly circumscribed. The axillary glands on the right side were enlarged and on close inspection the center of the induration within the breast seemed to fluctuate; otherwise the mass was healthy. The diagnosis was made of probable tuberculosis. Operation was recommended and the breast and axillary glands were removed. A microscopic examination subsequently showed the tuber-

cle bacilli to be present. Recovery took place, and one year later the patient again presented herself with a similar process in the opposite breast. This was of the same character, and the same treatment was repeated. Two years later she was again seen. She was then the mother of two children, and was suffering from phthisis pulmonum, with bacilli in the sputum. Such a case as this on first inspection might have easily been mistaken for syphilis as the organs within the body at that time were uninvolved, and the disease in the breast was a primary lesion. On the second examination, however, the tubercular involvement of the lung was determined so that the disease would have been comparatively easy to diagnose.

Actinomycosis does not attack the breast except as secondary to the bone or the thoracic organs. As a primary disease in the breast it has not been observed. A primary actinomycosis of the skin, however, has been observed. It resembles tuberculosis and syphilis in that it consists of a circumscribed indurated area which breaks down and leaves a granuloma, and as it advances from the periphery in all directions it may invade the breast secondarily and render an immediate diagnosis doubtful until the actinomycoses are found. The sclerosing or interstitial mastitis may simulate in its progress scirrhous carcinoma, and the circumscribed gumma within the breast may be difficult to diagnosticate. The tuberculoma is of the first importance, and next in order come the fibroma, the adenoma, the cystadenoma, the cystocarcinoma, the sarcoma and the cysts. All chronic inflammatory processes gradually disappear or soften and form abscesses. When such nodules remain for a month or a year unchanged, and possibly are slightly nodular and often only painful during menstruation, they are generally innocent fibromata. If they grow slowly or continuously they probably represent adenomata, cystadenomata or echinococcus cysts, and if their growth is still more rapid, a sarcoma, cystosarcoma, or an endocystic carcinoma.

(To Be Continued.)

BOTTINI'S OPERATION AND OTHER TREATMENT OF THE ENLARGED PROSTATE.[1]

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PROSTATITIS may appear any time in life but occurs generally in young men or in those of middle age. It is an inflammation which has progressed from an acute to a chronic stage. It may result from sexual excesses and sexual perversion, particularly masturbation, unskilful use of the catheter, violence, the use of caustics, or of strong injections in the deep urethra, and as a result of gonorrhea. The principal symptom is soreness or severe pain, spreading in all directions. This pain is of a dull, aching character which is aggravated by the touch of any instrument inserted for the purpose of investigation or treatment. It is referred to the perineum, rectum, urethra, and bladder, even to the suprapubic region and the pelvis. Urination causes scalding, and coitus and ejaculation is so painful that intercourse is made almost impossible. Epithelium appears in the urine as flocculi or thin shreds. Hyperemia of the parts can be seen on endoscopic examination, which often causes bleeding. Complications occur in adjacent parts, and manifestations of a general neurasthenia may ensue.

The treatment should first be directed toward allaying pain and irritation before radical measures for cure can be commenced. Irrigations of hot water, simple or medicated, are very important. It is best to use a syphon arrangement with a nozzle not longer than one or two inches. The water receptacle should be placed sufficiently high so that the fluid will be propelled by gravity, and thus no instrument will be in contact with or irritate the hyperemic portion. Anodyne suppositories should be employed and ointment of a similar kind should be injected into the urethra. Benzoinol with cocain deserves particular mention. When the painful irritation has subsided the writer has often effected a cure by local galvanization. The electrode must be introduced with great gentleness and must not be pushed onward while the contact with the prostate gland gives rise to pain. The galvanic current must be mild, from 3 to 5 milliamperes. The electrode in the urethra should be connected with the negative pole while the positive-pad electrode is held by the patient. Sometimes it may be well to begin with high-tension currents as an analgesic. The writer objects to the local application of nitrate of silver, which generally over-stimulates the parts and thereby makes matters worse. Any treatment requires time, care, and patience on the part of the surgeon and the patient, but if such is exercised the result will be a cure. Hygienic measures and rest must be insisted upon. Surgical interference has been recommended, and prostatectomy in various ways performed, the consideration of which must be omitted here on account of limited time.

Hypertrophy of the prostate differs from prostatitis in that it is a disease of advanced age and is not painful. The prostate is scarcely sensitive to the touch. The enlargement acts as a mechanical obstruction to the bladder which prevents a free flow of urine. Cystitis develops with dilatation of the muscular walls, frequent micturition, and often retention. Other sequels of the obstruction to the

[1] Read at a meeting of the Northwestern Medical and Surgical Society of New York, June 21, 1899. For discussion, see page 413.

passage of urine are ureteritis with dilatation of the ureters, pyelitis, and pyelonephritis.

The treatment of prostatic hypertrophy has changed from one extreme to the other. In former years the patient was condemned to use the catheter for a lifetime, which was a very indefinite period and it generally increased the trouble. At present the condition may be attacked surgically by way of the urethra, perineum, rectum, or suprapubically. Electricity has also been used in different ways.

It is more than twenty years since Bottini devised and practised the operation on the prostate with the galvanocautery. It consists in burning a passage through the enlarged gland by the galvanocautery, thus enlarging the passage and removing the obstruction. The burner is made of heavy platinum encased in an instument resembling a lithotrite. The burner is heated red, or even hotter, by a storage battery, and by a screw slowly advanced through the obstruction. Antiseptic precautions are advisable, particularly of the bladder. It is still a mooted question whether the bladder should be filled with air or with water. A local anesthetic to the prostatic portion of the urethra is absolutely necessary, cocain being preferable. Some patients may choose ether narcosis. Several incisions forward and backward may be made if the operator finds such a procedure necessary. During the passage of the burner the operator may guide it by placing one finger in the rectum. The whole operation may be completed in a few minutes.

Attracted by the first reports of this operation the writer performed it several times. The late Dr. Guleke of New York had imported an original Bottini instrument with which he and the writer operated. These operations were performed in 1882 and 1883, but as they were not satisfactory to us the details were not specially reported, but my own objections were treated of in other papers. This fact explains the incorrect statements of recent reports in 1897 and 1898 to the effect that the Bottini operation had never been performed in this country.

Not having had the expected result from my experience with the Bottini instrument I constructed my own galvanocautery sound for the treatment of hypertrophied prostate, which was described in a paper read before the Surgical Section at the thirty-seventh annual meeting of the American Medical Association at St. Louis. The paper was published in the *Journal of the American Medical Association*, August 28, 1886. This instrument in a new garb and improved was again described in a paper, entitled "The Galvanocautery Sound and Its Application, Especially in Hypertrophied Prostate," read at Washington, before the International Medical Congress, September 8, 1887. It was published in the Transactions of the International Medical Congress as well as in the *New England Medical Monthly*, December, 1887. In these papers I described the Bottini method, expressed my full appreciation of it, and also stated the objections. If I had not performed Bottini's operation I would not have been able to criticize it, nor would I have devised my galvanocautery sound, which has worked very satisfactorily. While I admire the genius of Bottini I object to the following points from my personal experience in 1882:

1. The instrument was clumsy, unhandy and heavy.

2. The platinum burner was so thick that it got hot too slowly and when hot lost its shape by bending so that sometimes it would not move back into its beak.

3. The very large storage battery was too heavy for transportation and a smaller one did not generate enough heat.

4. The instrument was shaped like Heurteloup's lithotrite, the end having only a short condée. Such an instrument is exceedingly difficult to introduce, and in many cases of hypertrophy non-introducible, the mechanical obstruction leaving no space for its passage.

The intention is to push the instrument into the bladder over and beyond the enlargement of the prostate, then to reverse it so that the beak is turned downward. The galvanocautery knife is hidden inside the beak and moves outward when the dial is turned on the handle as the battery heats it, thereby making a central cut in the obstructing prostate.

5. The result of this operation was very uncertain. It sometimes caused shock, pain and inflammation and irritated the bladder, and the exfoliation of the scabs caused by the cautery gave rise to more complications. It may be again stated that the effect of the galvanocautery is really a burning through the tissues entirely different from electrolysis, which is a chemical absorption.

6. The patient has to remain in bed for weeks, and from some reports made by Bottini himself it has been shown that voluntary micturition occurred only after twenty-four days.

7. The operation is not free from danger.

For the above reasons I constructed my galvanocautery sound. The instrument is catheter-shaped, of smooth, polished metal with a short curve at one end. At this end is a fenestrum in which is placed the platinum wire, the burner to be heated. A serpentine form is best for this wire. Each end is firmly attached to one of the two copper rods inside the tube and represents respectively the positive and

negative pole. The other end of the instrument is straight and forms the handle, in which extend the copper rods, each of which is fastened to one of the pins or heat conductors. These two pins are connected with electric cords by binding screws. The other ends of the two electric cords are fastened respectively to the positive and negative pole of the battery. The current-breaker is movable, and when set straight and pressed firmly down on the screw electricity is evolved and the burner instantaneously heated. The improvements consist in (1) the handle being in one light, convenient piece; (2) having the current-breaker under the immediate control of the index finger; (3) having the fenestrum filled up, by which means the instrument is more thoroughly insulated and less liable to become heated; (4) having the tube filled up, thus preventing it from getting wet or blocked with debris. A storage battery is used to heat the wire.

The method of using my galvanocautery sound is as follows: It is connected with the storage battery and the potential regulated by means of a rheostat. That portion of the prostate to which the cautery is to be applied must have been ascertained and the distance from the meatus measured. The instrument is then introduced so that the fenestrum with its platinum wire is in contact with the part to be cauterized. One hand of the operator holds the instrument firmly in place while the other hand sets the battery in motion. The current-breaker is placed in a straight line and pressed firmly upon the screw, a flash follows, and the raising of the finger from the current-breaker disconnects the current. In one minute the operation is finished and the instrument withdrawn. In causes no pain, and in some instances the patient scarcely believes that anything has been done. He is able to walk about and is not detained from his business. In the case of very sensitive patients I have used cocain injections, but it was scarcely necessary. The séance should be repeated in about three days, or even in two. The instrument must be kept scrupulously clean, as the cautery will fail to work if there is dirt between the connections.

The question now arises, How does this method bring about a cure? The end sought is first to remove the obstruction so that the bladder can discharge all the urine, and at regular intervals, and then to reduce the prostate to its normal size. The theory is that the cautery first acts as a tonic and next as an astringent; the mucous lining shrivels up, and the glandular tissue contracts, and by shrinkage the size is diminished. The stimulation gives new life and healthy action. Each repetition of the operation acts similarly, and perhaps on another part of the hypertrophied gland. The operation must be repeated until a cure is effected. Care must be taken not to over-stimulate and thus cause prostatorrhea, prostatitis, etc., thereby aggravating the very ailment we seek to cure. The cauterization must be just severe enough to accomplish the object and no more. If it is too prolonged and too deep the glandular action is overtaxed and weakened and the operation will be followed by a terrible prostatorrhea which requires a long time for cure. At the same time an inflammation is created which causes pain and swelling, and the over-cauterized tissue will slough and septicemia may ensue. For these reasons I prefer the slow method described and am opposed to rapid methods and to too deep cauterizations.

In the treatment of an enlarged prostate by the galvanocautery it is absolutely necessary to pay attention to other symptoms and troubles of the patient according to established principles. Pain must at all hazards be allayed. While the galvanocautery is used it is of the greatest importance to attend to the state of the bladder by drawing off the urine and washing the viscus out. This treatment is indicated in all cases of enlarged prostate in which urgent necessity for immediate relief does not exist, and particuiarly in cases in which the patient is walking about. It is useless if the patient is in the last stages of albuminuria, when uremic poisoning may carry him off at any moment. The earlier the treatment is instituted the better the results which may be expected.

A modification of Bottini's apparatus was made about two years ago by Freudenberg of Berlin. This device is a great improvement and does away with some of the objections experienced in former times. Freudenberg describes his modification as follows: "The modifications in point are relative to shape, handiness and electrotechnical construction, affording at the same time the possibility of sterilization. The modified instrument is provided with a stout cylindrical, grooved handle, strong and steady in the hand, quite resembling the well known handle of a lithotrite. The cooling apparatus is inserted on this side of the handle, instead of at its farther extremity, thereby obviating incandescence of the handle, and securing the rubber hose of the cooling apparatus from being compressed by the ulnar aspect of the hand. In lieu of the platinum blade platino-iridium is used, this alloy being harder and so less apt to bend, and by reason of its electrical resistance permitting of the employment of the weaker current for rendering the blade incandescent. Another addition consists in the conduction of the current ascending to the knife within the guide through a single wire only, equaling in volume the

two wires used in the original instrument; the descending current passing through the hull proper, and by reason of its close contact with the cannula, through the entire length of the external instrument. Moreover, greater steadiness of the blade, riveted as it is to the inflexible hull, is assured. The connection of the instrument with the conducting wires has been achieved by a process corresponding with the axis of the instrument and leaving both poles in a concentric arrangement. A slight jerk will move up the corresponding cable attachment to which the cables are fastened; these are united to one conducting wire, and owing to the improvements of electrical construction are much thinner than formerly.

"Interpolation and interruption of the current are effected by a minute screw, superseding the special interrupter of the original apparatus. The last alteration is the employment of a water-proof and heat-proof putty which, by tightening and isolating the apparatus, allows of its being treated *in toto* like any other surgical instrument, not only as to antiseptic solutions, but as to sterilization in boiling water, a process we could not formerly have applied without seriously damaging the instrument."

The operation as modified by Freudenberg has lately become a favorite one with the profession and within the last few months many reports have appeared. Some of the objections to Bottini's incisor have been removed by Freudenberg's modifications, some still remain, and it is desirable that the future will create an ideal instrument for the purpose. Freudenberg himself reports thirteen cases, with the following results: Relieved, 4; greatly improved, 3; benefited, 4; deaths, 2.

MEDICAL PROGRESS.

The Significance of Imperfect Vaccination Pustules.— CASTERET (*Presse Medicale*, June 24, 1899) has attempted to determine the significance of badly formed vaccination pustules. On the second or third day after vaccination a little pustule may form and undergo three different evolutions: (1) it may disappear on the fourth or fifth day—*unsuccessful vaccination*; (2) it may go on and develop by the seventh or ninth day into an umbilicated vesicle—*successful vaccination*; (3) or it may form a pustule surrounded by an area of inflammation which dries up on the fifth or sixth day—*doubtful vaccination*. The nature of pustules of this character has been much in dispute. Some have asserted that they were due to various germs and the name "false vaccination" has been given to the condition. Others, and among them the author, have maintained that they are manifestations of the vaccine material itself. If material from such a pustule is inoculated into a heifer it will produce the typical eruption of vaccinia. They represent an abortive type of vaccination, the material not having arrived at its complete development. They certainly render the individual immune since revaccination two or three months afterward does not take. Some of these doubtful vaccinations are due to a weakened vaccine as shown by the slow development when the material is inoculated into a heifer. After such an inoculation the material regains its normal power, and will act upon a second heifer as normal vaccinia material. After this second inoculation it will also produce good vaccination pustules in human beings.

Abdominoperineal Proctosigmoidectomy. — ELLIS (*Atlanta Jour.-Rec. of Med.*, August, 1899) suggests an operation for the removal of malignant disease of the rectum or lower portion of the sigmoid to which he gives the above title. It is a grave operation but it gives apparently the best chance of a radical extirpation of the diseased tissues. A suprapubic abdominal incision is made, and at the last lumbar vertebra the internal iliac arteries are located. At this point they are a little over an inch from the median line. The peritoneum overlying each artery is divided, care being taken to avoid the ureter which is thus drawn outward. The artery is separated from its vein and ligated. The sigmoid flexure is then dissected free after the ligation, if necessary, of the inferior mesenteric artery. The gut is tied above the tumor with gauze in two places, and divided between the ligatures after compression by a clamp. The cut ends are immediately wrapped in sterilized gauze to prevent soiling of the wound, and the liberation of the rectum is continued downward into the pelvis as far as is convenient. The gut which has thus been freed is dropped into the pelvis and packed above with sterilized compresses. The abdominal wound is closed and an artificial anus is made in the left iliac region. The patient is then placed in the lithotomy position; the anus is plugged and an elliptical incision made through the skin around it. The levators are divided and the anterior surface of the rectum is separated from the vesical triangle with especial care. The whole of the severed intestine with the overlying compresses is drawn out through the perineal wound. The cavity is packed with gauze and permitted to close from above downward. The writer does not claim especial originality for this method of operation in which he has attempted to combine the best points in the operations of Doyen, Gussenbauer, Hochenegg, Quenu, Allingham, and Von Bergmann.

Successful Out Door Treatment of Tuberculosis in London.—SOMMERVILLE (*Lancet*, July 22, 1899) gives the history of a cure of tuberculosis by out-door treatment in London which shows in a striking manner how success may follow the carrying out of the best therapeutic measures even under apparently adverse circumstances. The patient was a German, aged twenty-one years. The diagnosis of incipient phthisis rested upon physical signs and the demonstration of tubercle bacilli in the sputum. The appetite was poor and there was an evening rise of temperature of 1½ to 2 degrees. Circumstances pre-

vented his leaving London. He was put upon a daily diet which included five or six eggs, a bowl of oatmeal porridge with new milk, beef, mutton, chicken, ham, a little claret, and a very small amount of brandy in or after a large glass of milk night and morning. Cream, puddings, and various minor dishes were also allowed. Altogether he took from five to six pints of milk daily. The appetite at first was poor and the digestion not what it should be, but as time passed and the quantities of the above-mentioned foods were increased, both appetite and digestion improved. The greater part of each day was spent out of doors, walking, driving, etc., a rest being taken before lunch and dinner. The excursions were mostly contrived under the guide of a woman friend, so that they had some objective point of interest. The patient took a quinin mixture containing a little compound camphor and used an inhalation of carbolic acid and iodin. In seven weeks, bacteriological examination failed to show any tubercle bacilli in the sputum; the cough and sputum had almost disappeared; there was no further hemoptysis; the pulse had fallen from 110 to 80; the temperature was normal; the râles had disappeared from the apices, and the subclavicular and intraclavicular hollows were filling up, and the patient had gained fifteen pounds in weight. The writer attributes no small share of the success of the treatment to the clever way in which the patient's friend managed him. He was saved from the depressing effect of associating with others in a similar condition, and his out-door life was made more a matter of pleasure than a means of seeking health.

The Therapeutics of Painful Deglutition.—YONGE (*The Therapist*, July 15, 1899) made a series of observations with fourteen local anesthetics with the object of determining the most suitable substance in this class for palliation of laryngeal or pharyngeal dysphagia. Nine of them seem to possess considerable value under different circumstances. They are cocain, antipyrin, carbolic acid, guaiacol (with or without menthol), eucain, morphin (with or without iodoform), paramonochlorphenol, and orthoform. Nitrate of silver in solution, if used as a spray for laryngeal ulceration, produces a film which protects the denuded surface from further irritation. Cocain he found to be one of the best, but it has the disadvantages of transitory action, toxicity, expensiveness, a bitter taste, and the production of a constrictive feeling. Ice-cold solutions of cocain appeared to have at least double the anesthetic power of solutions of ordinary temperatures. A combination of cocain with antipyrin (five per cent. of the former to twenty per cent. of the latter), used as a spray gave relief in moderate degrees of pain for two or three hours. In perichondritis of the larynx a thirty-per-cent. solution of antipyrin was found superior to cocain in that the effects lasted much longer and the quantity of the drug required was in most instances innocuous. Eucain B. appeared to be preferable in children. He found a twenty per cent. solution of carbolic acid approximately equivalent to a one or two-per-cent. solution of cocain.

Dysphagia resulting from a tuberculous ulcer of the larynx may be quickly relieved by puncturing its floor with a specially curved syringe and injecting one minim of pure guaiacol. He mentions an instance of this character in which dysphagia was so great that rectal alimentation became necessary although the patient's appetite was ravenous. One week's treatment with guaiacol sprays and two injections of one minim of guaiacol in the floor of the ulcer caused the dysphagia to disappear and the ulcer soon healed. Insufflation of morphin and iodoform is an old method of treatment. A more recent application and one of great value in advanced cases of laryngitis in which any direct attempt at applying drugs causes distress, is prepared as follows:

℞	Morphiæ hydrochlorat. . . .	gr. ⅙
	Mucilag. acaciæ	ʒ j
	Glycerini	ʒ ij
	Aquæ . . . . . q.s. ad	℥ j.

This mixture is administered in sips before each meal. The sticky fluid clings to those parts which the food will touch on its way into the esophagus and thus temporarily relieves the pain of deglutition. The method is applicable for syphilitic and malignant ulceration.

Paramonochlorphenol has been highly recommended by Simanowsky and Spengler of St. Petersburg for tuberculous laryngitis as both palliative and curative. It is employed in solutions of from five to twenty per cent. in glycerin. These are rubbed into infiltrations and ulcerations with an ordinary curved cotton applicator. The administration causes acute pain, which is followed, however, by a prolonged anesthetic effect. Orthoform is a powerful anesthetic, not so potent as cocain, but more suitable for prolonged application by reason of its innocuousness. The anodyne gives relief in from five to ten minutes and the effect lasts from a few hours to four or five days, owing to the slow solubility of the substance. The drug has no effect upon unbroken mucous membrane. It is necessary that the nerve-endings be exposed. It is well known that fluid thickened with flour, arrowroot, etc., is less painful to swallow than either solids or liquids. Sucking small pieces of ice before a meal gives considerable relief. In ulcerative conditions of the larynx a patient can sometimes swallow with comfort if he lies flat on his stomach and sucks up nourishment through a tube from a cup placed on a chair by the bedside; or, while in the same position, food may be swallowed in gulps to avoid the choking and coughing which is due to imperfect closure of the upper part of the larynx. The use of the esophageal tube has been advised but it causes such discomfort that rectal feeding seems preferable. No single remedy exists which will relieve all forms of dysphagia, but when one anesthetic fails another may succeed, so that there need scarcely be a patient who is forced to turn away unrelieved.

Silver Catgut Sterilized by Dry Heat. — BOECKMANN (*St. Paul Med. Journ.*, July, 1899) predicts that the time will come when the preparation of catgut will be perfected to such a degree as to make it an ideal material for sutures and ligatures. It is proven beyond a doubt that aseptic catgut does not give rise to any trouble if it is not infected by the hands of the operator and is applied in aseptic localities. Therefore, in cases of failure the writer blames himself rather than the catgut. The ideal

gut must be pliable, durable, clean, sterile, and, last but not least, antiseptic. It is safe to assume that all catgut is contaminated with chemical and mechanical impurities. Clean catgut ought to look perfectly white but it is yellow if fat is present. Chemical solvents, such as alcohol, ether, turpentine, and benzine, dissolve more or less of the fat contained in the gut but this is rather a disadvantage as the gut is thereby rendered dry and less pliable than before, and one does not know to what extent they dissolve the toxins. The first process in cleansing the gut should be a scrubbing with soap and water. Catgut bundles which contain ten strands are spread out on an inclined washboard and kept in place at top and bottom by pegs. The bundles are scrubbed with a clean sponge and sterile hot water containing green soap, the hands having previously been scrubbed and the fingers covered with rubber tips. After fifteen minutes of scrubbing the bundles are rinsed in sterile water. The second step is to make the gut antiseptic. Sublimate coagulates albumen and does not seem to penetrate properly. Carbolic acid impregnates the gut but is disposed of much sooner than the gut itself, thus rendering the latter a culture medium for bacteria on which the carbolic acid exercises an inhibitory action while present. Iodoform decomposes into free iodin, making the gut brown, irritating, and brittle.

Credé impregnated catgut with a one-per-cent. solution of lactate of silver for one week and afterward exposed it to the bright sunlight for the purpose of reducing the silver salt under the supposition that the gut would be sterilized by the pure silver thus produced. Boeckmann repeated his experiments and found the silver catgut superior to any other antiseptic catgut, although he does not trust to the sterilization thus obtained. He decants the solution after one week and puts the jar which contains the strings in the sunlight with a piece of gauze over its mouth until the gut turns black. The jar is then filled with sterile water several times and shaken until the water remains perfectly clear. The strings are then uncoiled and stretched back to their natural size by weights in a case which protects them from dust but exposes them to the sunlight. When perfectly dry they are cut up into desirable lengths, rolled up in separate coils, placed in different hardening fluids, and again exposed to sunlight. The silver gut will last about five days in the tissues. If hardened in alcohol it will last about a week. If immersed in a one-per-cent. solution of formalin-alcohol it will last about two weeks in aseptic tissues. This ought to suffice for any purpose, but if any surgeon wishes a more durable material he can obtain it by hardening the gut in a five-per-cent. solution of formalin. Such gut will last about six weeks. The hardening solutions are decanted and the gut again dried by placing the jar in an incubator. The strings are wrapped in paraffin paper and placed in envelopes which are sealed. The envelopes are heated in a dry sterilizer at a temperature of 280° F. for three hours or more. This dry sterilization disposes of all handling of the gut until the moment when it shall be used. This method of preparation is more suited to the laboratory than to the surgeon's office, but the product is such a satisfactory one that Boeckmann looks to see catgut so treated supplant catgut prepared in other ways as well as kangaroo tendon.

THERAPEUTIC NOTES.

Non-Operative Treatment of Tuberculous Peritonitis.—BYFORD (*Va. Med. Semimonthly*, July 21, 1899) does not believe that the cure of tubercular peritonitis, which so often follows abdominal section, is due to the slight operative interference. Observation has taught him that tubercular peritonitis is increased and the patient is prevented from getting well by the intestinal irritation which is produced by the ingestion of improper food. If this source of irritation be avoided, the patient will usually recover without other medicinal treatment. During the first few days of an acute attack the patient should receive the treatment that is suitable for an acute peritonitis. After the first few days no opium should be allowed, but hot fomentations should be applied to relieve pain. Enough calomel should be given to turn the stools to a dark green, and afterward divided doses of salines sufficient to produce two or three soft stools should be administered each day. The diet should be fluid, in small quantities, so as to avoid the production of intestinal gases. Later such solids may be given as will neither produce gas in the stomach or bowels, nor leave a solid residuum. The patient should be kept in bed until all abdominal tenderness is gone and the evening temperature is almost normal. Later, when there is any rise in temperature or indication of abdominal tenderness, he should again remain quiet. Salol, guaiacol, and creosote are helpful in keeping down intestinal fermentation, while toxics, stimulants, and general antitubercular remedies should not be neglected. For several months the diet should be carefully regulated. It is Byford's belief that the rest in bed and scanty diet are responsible for the cures of tuberculous peritonitis which sometimes follow operations performed upon patients suffering with this disease.

Chronic Eczema Treated by Naftalan.—ROSENBAUM (*The Therapist*, July 15, 1899) gives a résumé of his experiences with naftalan, especially in burns and acute chronic eczema. The results obtained in chronic eczema were far more striking than those obtained in acute eczema. One man had suffered for more than twenty years from an obstinate eczema of both hands, with tormenting itching. The skin was cracked and so covered with crusts that he always wore gloves in public. In a short time after the naftalan treatment was begun the itching ceased, and the skin rapidly took on a normal appearance. The application of naftalan once a week at night was sufficient to preserve this good condition of the skin. In another patient, a woman, there was an eczema which extended over almost the whole surface of the body, so that the appearance was similar to that of ichthyosis. In forty days after the commencement of the treatment with naftalan she was completely cured.

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THE CONDITIONS OF INFECTION.

THE paper we publish this week on "Infection through the Digestive Tract" by Dr. Felix Vitale, a former co-worker with Sanarelli, is of special interest not only as a contribution of importance to the discussion on the etiology of yellow fever, but as a suggestive review of some of the conditions of infection as the knowledge of them is gradually being evolved in the progress of modern bacteriology. Symbiosis and antagonism, the influence of microbes upon each other in a favorable or unfavorable sense, is the question that is occupying most attention just now. That germs, so-called, are not wholly evil in their influence has of course been known for a long time, but the realization that certain forms among them actually act as our protectors against others by inhibiting their growth has only come in very recent years.

With the knowledge of this fact it is easier to understand that pathogenic germs, such as the diplococcus of pneumonia may be almost constantly present in the saliva of even normal individuals, and yet not produce the disease, or that the diphtheria bacillus may lodge in a healthy throat for weeks or even months without doing harm. The antagonism of other flora of the mouth is of course not the only reason that prevents the outbreak of such diseases, but it is an important reason, and it emphasizes the necessity for the avoidance of any drastic measures that would disturb Nature's perfectly but very delicately balanced microbic equilibrium for protective purposes. This disturbance of bacterial equilibrium constitutes an important element in the greater prevalence of certain diseases during certain seasons of the year than at others, and gives the probable clue to the occurrence of various intestinal disturbances when the changing of drinking water, for instance, in removing from one place to another gives entry for the moment, at least, to an entirely new crop of intestinal flora between which and the former indigenes a new equilibrium of symbiosis or antagonism must needs be established. The question of infection is a much more complicated one than has been imagined. Intestinal antisepsis takes on a new appearance in the light of this bacteriologic advance for it may prove that so-called intestinal antiseptics disturb bacteria that otherwise do good rather than harm by their presence in the digestive tract. In general, the lesson *non nocere* comes out still more forcibly than before and makes clear the importance of conservative medication.

INJECTIONS IN INTUSSUSCEPTION.

IN *Pediatrics*, April 15th, Clubbe reports eight cases of intussusception treated by laparotomy with six recoveries. This is a very good showing, and it naturally follows that his advice to precede an operation with an oil injection demands serious consideration. This old method of treatment is not very highly esteemed by most surgeons of to-day. Their objections to it are of the general character, that it wastes valuable time, that it can do no good and may do harm, and so forth, though some writers advise its employment in the early hours of the obstruction.

Clubbe takes a positive stand that the injection of warm olive oil should be employed in every case, no matter at what stage the patient is seen. He says that he has reduced the obstruction in six patients by this means alone, and as he always makes the injection after the patient has been prepared for operation and the anesthetic has been given, very

little time is lost, and the decision to operate is in no way interfered with, unless, of course, the injection is successful in reducing the intussusception. The greatest advantage he claims for it, however, is, that in almost every case, the intussusception will be partially reduced, and that in the gentlest manner; and, by the more exact localization of the unreduced portion which follows, the abdominal incision can be made directly over the lesion. Hence the operative time may be shortened rather than lengthened by an injection given while the child is under the anesthetic.

COLLES' LAW AND ITS EXCEPTIONS.

SUPPOSED discoverers in medicine have fared rather badly at the hands of the present generation. Nearly always some one has been able to point out, or thought he could, that the discoverer was anticipated by some one else of whom, as a rule, the world had heard practically nothing. Colles has suffered with the rest, and French syphilographers, notably Fournier and Morel-Levalée, have pointed out that the first one to formulate the law so long known as Colles', that "the paternally syphilitic child will not infect its own mother," was really Baumés, a French physician, and that in all justice he should be given credit for it. It is not probable, however, after its long years of use that there will be any change in the designation of the law.

Of more interest is the fact that in recent years a certain number of exceptions to the law seem to have been pointed out. These have not been of sufficient number to absolutely impugn the truth of the law in general, but they seem to show that there are special cases that either escape from its influence entirely or in which the protection afforded by it is but transitory. The principle on which the law affords protection is still in dispute. While Fournier considers that the mother is protected because she has been actually infected with syphilis, though in a mild, or, as he calls it, Platonic form, Finger of Vienna and Von Düring of Constantinople think that she has only been rendered immune. This immunity they suppose to be due to the absorption of toxins and perhaps antitoxins from the fetal blood without actual infection by the micro-organism of syphilis. It can readily be understood that immunity thus produced might be of comparatively short duration. The observations of bacteriologists on other diseases have shown that the immunity secured by antitoxins is not lasting. The protection afforded by prophylactic injections of diphtheria serum lasts not more than three weeks. Some years ago the brothers Klemperer pointed out that the protective substances exist in the blood of pneumonia patients for even a shorter time than this. Whether we have in such considerations an explanation of the reason for certain reported exceptions to Colles' law remains to be seen.

A very striking case reported by Dr. Neuhaus of Munich in Unna's *Monatshefte für Praktische Dermatologie*, June 15, 1899, shows that the protection afforded the mother by having borne a syphilitic child did not protect her from infection from without, six months after the birth of her child at a time when the child had been dead for some months. In this case there could scarcely be question of reinfection after only six months of supposedly absolutely latent syphilis, and it is much more probable that the infection noted was primary. There evidently remains some careful collating of cases yet to be done before the physician can always be assured that the immunity undoubtedly conferred for some time upon the mother by bearing a syphilitic child is really enduring, and whether the occurrence of active lesions of secondary syphilis in the child toward the end of the nursing period might not prove an indication for the substitution of artificial feeding for the breast before the usual time for weaning.

THE COMPLETE OPERATION FOR CANCER OF THE BREAST.

NOTWITHSTANDING the excellent statistics that such operators as Halsted in this country, Cheyne in England, and Heidenhain in Germany have been able to bring forward as the result of operations for mammary cancer that included the removal of all the lymph nodes that were suspected of infection, not all of the practical operators have been ready to concede that this form of so-called complete operation is the only surgical intervention justifiable in these cases. During last winter there was a series of discussions on this subject before the Royal Medical and Chirurgical Society of London, in which a number of prominent London surgeons

took part. Not a few of the men who do large amounts of operative work still cling to the view that what has been called the incomplete operation may be employed. They object to the term "incomplete," which is a designation, and a very apt one, it would seem, of Mr. Watson Cheyne's invention, and claim that in certain cases the removal of the breast and of such lymphatics as are evidently infected is a radical operation, and the cure often an absolute one.

If anything has been made clear by the recent operative work in mammary cancer it is that on the first operation depends the ultimate prognosis of the case. Operations for recurrence are almost without exception merely palliative, and undertaken only to satisfy the patient's mind for the time being. It seems unfortunate, then, that there should be any hesitancy as to the thorough removal of all tissue reasonably open to suspicion of infection at the primary operation. Halsted's unprecedented results by his complete method are well known in this country, and show how much has been gained by radical removal. Since 1890 Cheyne has operated twenty-one times for mammary cancer, and twelve of his patients lived more than three years after the operation. Nine of these are still alive, six to nine years after the operation, and of the three who died only one is known to have died of cancer. What a difference between these results and those of the day not much more than ten years ago, when Billroth said that he was not sure that he had ever seen a patient with mammary cancer cured by operation!

There is still room for improvement in the matter of surgical interference in these cases, and the frequent references made in recent surgical literature to Halsted's suggestion that the supraclavicular as well as the axillary glands will have to be thoroughly removed shows the direction which operative advance will take. Most operators at present seem to consider this suggestion too radical, but so did the older surgeons of a few years ago when it was represented to them that it was necessary in every case to clean out the axilla. It seems but a question of time until this new suggestion will be very generally acted upon, and we can then confidently look for a still further reduction of the mortality from cancer.

Dr. Stiles of Edinburgh in a paper on "The Dissemination of Cancer of the Breast and the Necessity for Its Treatment by Extensive Operation" (*British Medical Journal*, June 17, 1899) brings out especially the fact that there are no macroscopic appearances of lymph glands that can be depended on to disclose their infection with cancer in the preliminary stages. "In its initial stage," he says, "cancer of a lymphatic gland gives rise neither to enlargement nor to induration, and the absence of these signs, therefore, does not necessarily mean freedom from malignancy." Even in the axilla, as he points out, lymphatic glands may often simulate fat clumps with only a small margin of glandular tissue, yet this tissue may contain emboli of cancer cells, for it would seem to be by embolism rather than continuity of pathologic process that cancer spreads among the lymphatics. Dr. Stiles then repeats Mr. Cheyne's advice as to thoroughness of the primary operation, and while he does not accept Halsted's views as to the advisability of the removal of the supraclavicular glands unless tissue removed from this region should prove on microscopic examination to be infected, he insists that the fascia of the serratus muscle shall be removed completely in every case, and to do this some fibers of the muscle itself must be taken with it, that the sheath of the axillary vein shall be removed, and the branches of that vein coming from the anterior thorax shall all be exsected in every case, as otherwise the lymphatics that accompany these veins cannot be eradicated with any certainty.

ECHOES AND NEWS

Professor Charles Stoerk, the eminent laryngologist, died in Vienna on September 14th.

Typhoid Fever in Madrid. — Fifty-nine cases of typhoid fever were reported in Madrid in one day — September 15th.

Deaf-Mute Congress. — An International Congress of Deaf-Mutes is to be held in Paris during the Exposition. The first school for deaf-mutes was opened in Paris in 1750.

Plague Suspects in Falmouth.—A Norwegian vessel which arrived at Falmouth, England, on September 16th has been quarantined because it is feared there are several cases of bubonic plague on board. Four persons died on the voyage.

The Pope's Illness.—It has been rumored that the

Pope is seriously ill. Dr. Lapponi states definitely that His Holiness is not even ill enough to require the attendance of a physician at the Vatican. The Grand Old Man of Rome continues to accomplish more work than many a man half his age.

Dreyfus Very Ill.—It was reported on September 16th that Dreyfus' health has deteriorated greatly since the verdict of the court-martial was rendered. In spite of his physical weakness he has maintained his calmness and courage. The Government, evidently fearing the disgrace his death would entail, pardoned him on September 19th.

Departure of the "Relief."—The Hospital ship "Relief," with surgeons, one hundred members of the Hospital Corps, twenty women nurses, and medical supplies, sailed from San Francisco for the Philippines on September 14th, notwithstanding that the local inspectors of steamships had condemned the vessel in so far as carrying passengers across the Pacific is concerned. The "Relief" will stop at Honolulu and at Guam.

Abstract Card Catalogue of Physiology.—According to *Science* it is understood that the Boston Public Library will undertake, during the coming winter, the publication of a card catalogue of physiology, the cards to contain not only the ordinary bibliographical information but also brief abstracts of the papers. The plan originated in the Physiological Department of the Harvard Medical School, and Professor W. T. Porter will be responsible for securing or preparing the abstracts.

To Outwit the Quinin Trust.—There is a likelihood of a breaking down of the quinin trust organized by German manufacturers through a movement said to have been started recently by leading cinchona planters of Java for the purpose of keeping the raw material out of the hands of the syndicate of manufacturers. There seems moreover to be no good reason why the United States should not get both the cinchona bark and the sulphate of quinin direct from Java, and thus avoid the trust.

A Woman Who Graduated in Medicine Eighty Years Ago.—The honor of granting the first degree in medicine to a woman does not belong to this end of the century. The University of Paris eighty years ago made Madame Boivin a doctor of medicine. She proved herself worthy of the degree not only practically but in a literary way, and besides membership in French and foreign scientific societies, she held an honorable position under the government as chief inspector of a home for convalescents. She died in 1841.

Increase of the Medical Profession in England.—The London *Lancet*, September 2, 1899, says: "During the last ten years the number of qualified British practitioners has increased by about twenty-two per cent., whereas the increase of the population has been only at the rate of 7.5 per cent. According to the Medical Directory there are enough practitioners in England to provide a medical attendant for every 1272 people, men, women, and children, a state of affairs which clearly makes it impossible for all the medical men to earn a decent livelihood."

The Yellow-Fever Situation.—This is much improved. Toward the end of last week there was a movement among the towns of the States of Mississippi and Alabama to quarantine against New Orleans and some other Mississipp River places, but the movement did not spread to any extent and the feeling generally is more confident that further outbreaks of the disease in the Mississippi region are not to be anticipated. At Key West the disease is well in hand and no further accounts of the development of yellow fever in people who have left the city are heard.

The Opium Habit among Asiatic Europeans.—The opium habit prevails among Europeans in the East to an extent which is appreciated only by those who are brought into contact with its victims. In view of this fact the announcement by McLeod of Shanghai that it is possible to cure the habit by the administration of sodium bromid is indeed welcome news. He gives the drug in two doses of two drams, in solution, every two hours for the first two days, and one dram on the third day. Three ounces of the drug in all will probably suffice in most cases.

French Scientists Welcomed.—The President and about 300 members of the French Association for the Advancement of Science arrived at Dover, England, September 16th, on a visit to the British Association, which was in session there. The latter had been urged to give the French Association the cold shoulder on account of the Dreyfus affair. Instead, the reception was most cordial. The French President kissed President Foster, many congratulatory speeches were made, feasting preceded the scientific work, and an ecstatic state of things prevailed generally.

How Soldiers' Feet Are Cared for in England—The importance of the care of the feet of soldiers can scarcely be overestimated. The fact that during the maneuvers on Salisbury Plain last year a large number of men were placed on the sick list on account of some slight trouble with their feet led to the formation of classes among the non-commissioned officers for the purpose of instruction in the art and science of chiropody. The men are not only taught to look after their feet, but are instructed in the prevention and cure of corns, bunions, ingrowing toe-nails, chilblains, blisters, etc., slight ailments it is true but any one of which if allowed to go unrelieved, will incapacitate a man for much marching.

Post-Graduate Study in London.—In correction of a recent announcement in the Students' Number of the *British Medical Journal*, the dean of the Post-Graduate College of the West London Hospital writes to say that not only are courses of lectures and demonstrations in the wards given by the staff of the hospital, but that the practice of the West London Hospital is reserved exclusively for post-graduates, and accommodation in the shape of lecture, reading, and writing-rooms are provided for their use. That this undertaking has met with

success is proved by the fact that nearly 100 medical men from all parts of the world have taken out tickets for study at the college during the past twelve months.

The Plank Bed in England.—One of Her Majesty's judges, Mr. Justice Matthews, has recently denounced the use of the plank bed in prisons in the strongest language. Placing a prisoner after a hard day's work upon a bed of planks with nothing under him but a single blanket and sheet, is a relic of the barbarities of the Middle Ages and on a par with the rack and thumbscrew. Yet according to the present law in England it is a necessary part of punishment with hard labor. A convict surgeon of long experience has expressed the opinion that sentences of four months, the first month on a plank bed, have produced more permanent injury to the health of prisoners than far longer sentences without the plank bed.

Concerning Quacks.—The "Annual Convocation of the Faith-Curists" opened on September 15th at the Sanctuary at the foot of Chapel avenue, Jersey City, and will continue for ten days. On September 17th a number of new converts were made, and many wonderful cures were reported. A man who had been an imbecile and a bodily wreck up to his thirty-second year is alleged to be "all right now," etc. The West Virginia State Medical Society is prosecuting Christian Scientists and all other quacks who engage in the practice of medicine without a degree from some reputable college. A committee has been appointed to raise funds out of which will be paid the expense of driving all illegal practitioners from the State.

Death of Dr. Cruice.—Dr. Robert B. Cruice of Philadelphia died suddenly on September 14th in the arms of a patient, General Pennypacker, whom he was visiting professionally. Dr. Cruice had been prominent in Philadelphia medical circles for thirty years. He was graduated from the University of Pennsylvania in 1859, and in 1861 entered the army as assistant-surgeon, attached to the Thirty-eighth Pennsylvania Volunteers. He served until 1863, when he was compelled to resign on account of injuries received by his horse falling on him. After the war Dr. Cruice returned home and became identified with the leading Philadelphia hospitals as surgeon. At the time of his death he was a Fellow of the College of Physicians.

Consumptives in California.—The California State Board of Health passed a resolution on September 14th declaring that plans should be considered for establishing a quarantine against human beings and domestic animals with tuberculosis entering the State. It would be astounding indeed if the plans proposed concerning human beings should mature. Dr. D. D. Crowley, in introducing the resolution, declared that statistics show tuberculosis to be spreading rapidly among native-born Californians. He referred to the constant danger from the large number of consumptives who seek Southern California for their health, and declared that the protection of the State's inhabitants is of more value than the cure of a small percentage of invalids. All this is practical Christianity with a vengeance.

Position of Women in Germany.—The struggle to determine the position of women in Germany continues unabated. After the students at Halle protested against the admission of women to the medical courses of that university, the Woman's League of Berlin submitted an address to the Federal Council of the Empire asking for the full admission of women to the medical departments of the universities and to the examinations in medicine. So far as the Universities of Giessen and Strasburg are concerned, this has already been granted. The government of the Grand Duchy of Baden is equally pronounced in their favor. In Berlin the administrators of orphanages have employed women in certain offices. On the other hand, the administration of the railways has just decided that any woman employed in connection with them shall receive from $25 to $50 less than that received by men for the same work.

Inspection of Fruit Syrups.—At the beginning of September, according to its official announcement, the Board of Health of New York City took upon itself the duty of allowing only syrups made from fruit-juice to be dispensed from soda-water fountains and other dispensaries of drinks. So far we understand very little has been found that required correction. It is supposed, however, that dispensers of fictitious flavoring syrups took warning, and for the time being at least, are not risking detection. It is well known that large quantities of so-called fruit-syrups are manufactured without the slightest tincture of fruit-juice entering into their composition. The products used in their manufacture are various aromatic substances from the coal-tar series of compounds, and a number of scents obtained in the same way. It is proposed, however, by the health authorities to break up the practice of dispensing any such materials in this city.

Butter of Cows Fed on Cotton-Cake —Cotton-cake is the mass of substance that remains after the cotton-seed oil is expressed under heavy pressure from the seeds of the cotton plant. It was long considered as a waste product, but of recent years it has been proposed to use it as fodder for cows, and the attempt has been successfully made. The *British Medical Journal*, in a recent issue, says: "Experiments made at Wye and in the laboratory are held to have proved beyond doubt that the characteristic constituent of cotton-seed oil passes into the milk of cows fed upon cotton-cake. Certain samples of butter examined during the year gave reactions for cotton seed oil, but the amount indicated was held to be not more than might be due to feeding on cotton-cake." This observation if confirmed by further investigation and other observers will make still more difficult the already tedious task of testing butter for foreign ingredients and deciding as to its adulteration.

Residual Light Effects on the Retina.—The following personal observation of the greatest of living scientists

seems worthy of special notice: Lord Kelvin writes to *Nature* from Aix-les-Bains, under date of August 7th, as follows: "Last night, during a thunderstorm of rare severity, in which brilliant flashes—single, double, triple, or quadruple—followed one another at intervals often of not more than a few seconds of time, I was surprised to see, with great vividness, on a suddenly illuminated sky, two nearly vertical lines of darkness, each of the ordinary jagged appearance of a bright flash of lightning. I remembered to have seen two real flashes of just the same shapes and relative positions, and I concluded that the black flashes were due to their residual influence on the retina. I turned my eyes quickly from the dark sky outside to an illuminated wall inside the house, and I again saw the same double dark 'flash,' which verified my conclusion in an interesting manner. The fatigued part of the eye failed to perceive the brightness of the sky in the one case and of the wall in the other."

The Color of Water.—As water and its natural color are the basis for certain comparisons in medical chemistry, the following note from Professor Spring, as given in the *Scientific American* for September 2, 1899, will be of special interest: The author reports on his experiments of many years to explain the color of the water. He has come to the conclusion that a pure blue is the natural color of water, for when we look through a long tube filled with distilled water against a brilliant white surface, a pure blue is seen, such as is shown by the Lake of Geneva in quiet weather, a color which is not influenced by superficial or interior reflection. When pure water becomes slightly turbid by extremely finely divided white or colorless particles floating therein, they reflect, even in the case of ground mountain crystal, a yellow light, which unites with the natural blue into a brilliant green color, such as is exhibited by the Neuenburg and Boden Lakes. The peculiar facts established by various observers, that the water of ordinarily green lakes turns perfectly colorless at times, is not due to a clarification, but, on the contrary, to an influx of a reddish mud, colored by ferric oxid, which completely neutralizes the green.

Hardening Plaster of Paris.—A German patent has been granted for the treatment of articles of plaster of Paris with an aqueous solution of ammonium borate for the purpose of hardening them and making them impervious to water. As such a process will be useful to orthopedic surgeons not only in making plaster splints last longer, but especially because it may serve to lessen the wear and tear on plaster bandages that occurs now whenever they come in contact with the discharges from the patient, we have thought it worth while to call special attention to the method. The hardening liquid may either be mingled with the plaster when it is being prepared, or it may be applied to the surface of the bandages with a brush after they have been put on. The solution is prepared by dissolving boracic acid in warm water and adding thereto sufficient ammonia to form the borate which remains in the solution. The manner of using the solution is thus described: The saturation of the gypsum or painting of the plaster of Paris is carried out in the cold. The objects are subsequently rinsed off and dried. The surface becomes very hard after two days and insoluble in water, while the induration in the interior advances more slowly.

Progress of the Malarial Investigation in South Africa.—In last week's issue our London correspondent reported that the expedition sent to South Africa by the Liverpool School of Tropical Medicine has reported complete success in identifying the species of mosquito responsible for the dissemination of the malarial parasite. The *British Medical Journal* for September 2, 1899, announces editorially that it has received a telegram from Surgeon-Major Ross, forwarded from Las Palmas, containing the important information that in the genus *Anopheles claviger* he has succeeded in cultivating the quartan form of the parasite. The *Journal* says further: "Through the investigations of the Italians we were already aware of the fact that the tertian and summer-autumn parasites affected the anopheles as their host; but now Ross' discovery proves that the anopheles can also become the intermediate host of the quartan. The cycle had hitherto only been completed for two of the three differentiated parasites of malaria, leaving the quartan to be dealt with. This Ross has done, so that the anopheles is now proved to be an intermediary host for all known malarial parasites. Another important point settled by Ross' investigations is the fact that the quartan parasite is to be met with on the West Coast of Africa. The prevalent form of fever on the West Coast is the summer-autumn, the tropical malaria of Koch, and, although the tertian parasite has been found there in a few cases, we had no definite knowledge that the quartan parasite existed in these regions. We congratulate Major Ross on the excellent work he has done." It would seem that the malaria problem, and with it the making of the tropics habitable for the white race without the frightful mortality which has so far been necessary for the acquirement of acclimation, is near at hand. This pleasant prospect is practically all the result of the work of English and Italian pathologists, and they deserve the highest praise.

The Plague Situation.—At Oporto there have been no new cases and no deaths for some time. On the whole the epidemic seems to have been a very mild one; though the disease existed in the city for some three months there were in all less than eighty cases reported. The *British Medical Journal*, commenting on this mildness of the epidemic says: "Unfortunately this is no criterion as regards the future virulence, the recurrence, or the continuance of the disease. We are rich in the literature of the behavior of plague, and one thing which stands out more prominently in this disease than in any other is the inveteracy with which plague clings to any city or district where once it has established itself. Hong Kong, now in the throes of its fifth or sixth outbreak, is an example of this, and it is the chief example we possess in modern times to guide us in our knowledge, or to indicate the behavior, of plague. Poona, in India, rejoiced in the speedy disappearance of the initial visit of plague,

only to be cast down by the recurrence of an outbreak of increased virulence and of wider extent." The *Journal* counsels, therefore, the most strenuous efforts at complete eradication of the disease before there should be the slightest relaxation of precautions against the spread of it in Europe. At Alexandria there has been an occasional case reported during September at times when further outbreaks of the disease seemed surely at an end. At Poona the disease continues almost with unabated severity. A very virulent form of plague is raging there, and Lord Sandhurst, the Governor of Bombay, has visited the city. Lord Sandhurst regrets the spread of plague, in spite of measures taken to combat it. He draws a dark picture of the future in many parts of India, where the crops have failed owing to the failure of the monsoon rains, and that they have to face not only plague, but a famine of more or less severity. In Russia the situation is so much improved that all further danger seems at an end. The plague-stricken village of Kolobovka, in the Astrakan district, has been completely enclosed by a rigid military cordon. The first case of plague in the Kolobovka occurred on July 23d of this year, and since then twenty-four cases of plague have occurred with twenty-three deaths. The last death occurred on August 24th. It has not been ascertained whence the disease came, and a careful report on the surrounding districts by Prince Oldenburg states that nowhere in the neighboring regions is there any suspicion of plague. At Hong Kong plague matters remain in statu quo. Twenty deaths from bubonic plague took place there last week. Eighteen new cases have been officially reported. At Newchwang the situation is worse than before, and there seems to be good reason to think that the disease is being disseminated throughout Manchuria. The Russians fear that there will be a scare among the Chinese working on the Trans-Siberian railroad between Talienwan and Newchwang. It is thought that it is the gathering of laborers for this work that has brought the plague from Hong Kong, Amoy, Canton, and other infected ports. It is at Newchwang they all disembark on their arrival. Fresh cases of plague are reported as having broken out at Magude, a little port not far from Lorenza Marques on Delagoa Bay, East Africa. At Mauritius there is not as yet any diminution of the virulence of the disease, over fifty cases a week are being reported and about thirty-five deaths. As we go to press the daily papers announce that the bubonic plague has broken out at Assuncion, the capital of Paraguay in South America. Assuncion is a city some sixty miles above Buenos Aires on the Paraguay River and has a population of about 30,000. The possibility of the truth of the report cannot be denied, though it may prove only a newspaper canard. It must be remembered that the plague existed at Oporto in Portugal for nearly two months before it was officially reported to other governments. There are, too, certain slow running cases of the plague that succeed in getting beyond even a watchful quarantine, which is not very likely to have existed in this case (when the ten-day limit for the development of the disease is accepted too literally).

MEDICAL MATTERS IN NEW YORK.

HEALTH BOARD PROVISIONS FOR THE DEWEY CELEBRATION—DR. SULLIVAN LOSES A FOOT—TO STOP THE SMOKE NUISANCE—IMPORTED LEPROSY—HOME FOR SELF-SUPPORTING WOMEN—A PAUPER WITH A BANK ACCOUNT—NEW HARLEM HOSPITAL—UNITED HEBREW CHARITIES—THE AMENDED DISPENSARY LAW.

PRESIDENT MURPHY of the Health Board has directed that a sanitary inspector be assigned to each of the various elevated railroad stations during the Dewey celebration, to see that the rooms and the means of egress and access to the trains are kept open, that no overcrowding takes place and that the community is protected.

Dr. Joseph Bryant of Manhattan, assisted by Drs. J. C. Kennedy and J. P. Murphy of Brooklyn amputated Dr. John D. Sullivan's right foot on September 12th. Dr. Sullivan is a Brooklyn police surgeon. When a child his foot was injured and he had limped ever since. This summer erysipelas attacked the member and necessitated the operation.

The Merchants' Association laid before its counsel on September 16th the result of the work of the special committee which made a tour the city for the purpose of noting the factories, buildings, tugs, and steamboats burning soft coal. An opinion has been rendered to the effect that all of the parties referred to in the memorandum could be proceeded against for burning soft coal—as committing a public nuisance. The government of bays and water highways is one that would come more particularly under the direction of the Federal officers, but no doubt these officers would work in harmony with the Board of Health in the prosecution of the delinquents.

A New York physician has written a letter to one of the lay dailies in which he "sounds a warning note" on the subject of imported leprosy. The writer cites the conclusions of the Berlin Lepra Conference to the effect that leprosy is contagious, incurable, and due to an organism existing only in man, that it is propagated by human currents, and that isolation is the only remedy. The problem, therefore, considers the writer, should be transferred from medical hands into Government hands, and is one "for the public press and not for the medical press." Several years ago there was a leprosy scare in this town. A law was passed in obedience to which some six unhappy creatures were isolated on North Brothers' Island. Soon the public got over its fright. Then some soft-hearted official, touched by the sight of these half dozen miserable human beings practically marooned upon this island, had a rowboat put surreptitiously upon its shore. To have freed them would of course have been an outrageous violation of the law. So, like the Arabs, they quietly stole away; and so the whole business ended.

The Regina Angelorum, a home for self-supporting working girls, was opened at 946 Lexington avenue on September 18th. It will be non-sectarian, although conducted under the auspices of the Catholic Church. The Sisters will give special care to the sick.

Eleanor Oldenbuttle, a widow, thirty-five years old, has lately died at Bellevue Hospital from Bright's disease and alcoholism. She was believed to be destitute until the Charity Organization Department notified Superintendent Blair of the Outdoor Poor Department that the woman had two large bank accounts.

President Keller of the Charities Department has asked the Board of Estimate to include $474,500 in his appropriation for 1900, for alterations and repairs to buildings. This sum is $274,500 in excess of the amount appropriated for the same purpose last year. The Commissioner considers that every cent he asks for is needed. Among other things, he intends to build a new Harlem hospital, which will cost $150,000. The entire amount asked for by Mr. Keller is $1,874,244, an increase of $293,512 over last year. All the Tammany officials have applied for increased appropriations, but, by all reports, Mr. Keller is one of the few who requires the increase, he asks, for strictly legitimate purposes.

The amended dispensary law for this city will go into effect on October 1st. A résumé of the provisions, therefore, may not be *mal apropos* at this time. A dispensary is declared to be any person, corporation, institution, association or agent whose purpose it is either independently or in connection with any other, to furnish, at any place or places, to persons non-resident therein, either gratuitously or for a compensation determined without reference to the value of the thing furnished, medical or surgical advice or treatment, medicine or apparatus, provided that the moneys used by and for the purposes of said dispensary shall be derived wholly or in part from trust funds, public moneys, or sources other than the individuals constituting said dispensary and the persons of said dispensary actually engaged in its distribution.

Each applicant before he receives a license, must swear that the dispensary is for the benefit of the public, and no one can conduct a dispensary without this license. The license shall not dictate which school of medicine shall be practised in the dispensary, but the State Board of Charities is empowered to visit and examine every dispensary and to revoke a license after due notice, if it finds that the law is being violated. The application for revoking shall be made to the Supreme Court.

No dispensary is permitted to be opened in a drug-store or in a tenement-house.

No one, except a duly licensed person or society, shall display any sign which would indicate the existence of a dispensary. Any person who violates the law is guilty of a misdemeanor, punishable by a fine of not less than $10, nor more than $250. The same fine is fixed as the punishment of any one who obtains dispensary relief by false representations.

CORRESPONDENCE.

THE DIDACTIC LECTURE—A REPLY.

To the Editor of the MEDICAL NEWS.

DEAR SIR:—In your issue of September 16, 1899, a correspondent quotes a communication of mine made to your columns several months ago and quite misrepresents my attitude toward the Didactic Lecture. Any one reading his letter without seeing mine would imagine that I do not believe in clinical and illustrative teaching and that I advocate the dryest form of didactic instruction. This is quite contrary to the fact. There are didactic lecturers and didactic lecturers, and one who does not know how to teach will abuse his opportunity. The point which I desire to emphasize is that the didactic lecture cannot be absolutely expunged from the roster of the medical school as some would have us believe, although of course such lectures should be much less numerous than they have been in years past.

I would not write this letter were it not that I do not wish to be placed on record by someone else, as advocating something which I do not advocate, and if your correspondent had as much difficulty in understanding didactic lectures as he has had in understanding what I have written, I do not wonder that he is utterly opposed to them.

In medical teaching, as in practical therapeutics, the safe rule is not to follow the enthusiastic advice of persons representing either side of a question; by following a well-guided middle course we can obtain those results which can be reached by adherence to the old rule of moderation in all things.

Very truly yours,

H. A. HARE.

PHILADELPHIA, SEPTEMBER 16, 1899.

MEDICAL MATTERS IN CHICAGO.

PANDEMIC OF INFLUENZA—REST-CURE HOME—MISSISSIPPI VALLEY MEDICAL ASSOCIATION.

CHICAGO, September 18, 1899.

SINCE the last great pandemic of influenza, which reached its climax in Chicago in the epidemic of 1891–92, there has been no period altogether free from the disease, and in this city it appears to have become permanently domesticated. In 1891 there were 336 deaths from influenza reported to the Health Department; in 1892 there were 103; 88 in 1893; 51 in 1894; 165 in 1895; 17 in 1896; 15 in 1897; 281 in 1898; and 304 up to the close of July, 1899.

While these figures are not, in themselves, very alarming, they have a serious significance for the student and worker in preventive medicine. It is true that the influenza epidemic of 1891 added less than one and a quarter per cent. of deaths from influenza to the deaths from all other causes, and the 304 influenza deaths during the first six months of this year are only two and a quarter per cent. of the total deaths from all causes. But the indirect results of the epidemic disease, through its fatal complications of other diseases, swelled the total mortality-rate of 1891 by seventeen per cent. over the average mortality-rate of the previous five years, during which there was no influenza. The increase of the death-rate this year is not so marked, but it is still more than fourteen per cent. greater than the average of the previous five years, the lesser comparative increase being fairly at-

tributable to the prevalence of influenza, in a minor degree, during the previous five-year period.

There has been a marked preponderance of deaths among females from influenza as the sole or chief cause, the proportions being 58.4 per cent. of females to 41.6 of males; while the proportions are very nearly equal in the deaths of which influenza was assigned as a complication or a contributory cause. The proportions for both groups are 54.1 per cent. females, 45.9 per cent. males. During this period, January 1st to April 30th, inclusive, there were 9457 deaths from all causes, influenza included, of which number 5184 were of males and 4273 of females, the sex proportions among the influenza deaths and among the deaths from all causes being almost exactly reversed, 54.8 per cent. males, 45.2 per cent. females for the latter, and 54.1 per cent. females, 45.9 per cent. males for the former.

Fifty per cent. of the total deaths from influenza as the chief cause were among persons over sixty years of age, and 22 per cent. of the total were of persons between seventy and eighty years old.

The will of the late Judge Richard Prendergast, who died of pernicious anemia, provides for the foundation of a rest-cure home for those who are suffering from insomnia and nervous troubles. This home is to be located at Wheaton, Illinois, and one condition on which its establishment is based is that it be known forever as "St. Winifred's Rest," in honor of the wife of the testator.

The official program of the meeting of the Mississippi Valley Medical Association, to be held in this city October 3d to 6th, has been issued, and 35,000 copies of it distributed. Of 62 papers listed to be read, 29 are assigned to the medical, and 33 to the surgical, section. The general sessions will be held in Handel Hall on Randolph street, opposite the Masonic Temple. The medical and surgical sections will meet in the lodge rooms on the eighteenth floor of the Masonic Temple.

This society was originally known as the Tri-State Medical Society of Indiana, Kentucky and Illinois, and from its foundation has had a successful career. Its early meetings were well attended by the States represented in its membership. Its organization was due largely to the efforts of Dr. B. F. Swafford, its first president, and Dr. G. W. Burton, who was its secretary for eight years. At the meeting held in Indianapolis, as the attendance was no longer limited to the three States, it was unanimously decided to change the name of the society, and a committee brought in the name, "Mississippi Valley Medical Association." It was originally intended to limit the membership to members of the profession residing in the Mississippi Valley, but of late years there have been in attendance physicians east of the Alleghanies, and as far West as Utah. In point of numbers, this Association is second to the American Medical Association. One of the largest meetings in the history of the society was held in Louisville, when there were so many papers on the program that it was necessary to divide the meeting into two sections, medical and surgical. This had been attempted at previous meetings, but usually most of the papers were read in general session. The annual addresses have been special features of the Association for many years.

At the meeting in Louisville more definite organization was adopted, including constitution and by-laws, which put the Association upon a sound working basis. The most important change was made in the membership, which became continuous, dependent upon regular payment of dues, two-years' non-payment causing forfeiture.

Chicago has many excellent clinical teachers who have almost without exception consented to aid the Committee of Arrangements in making the coming meeting interesting and profitable. There will be a series of public clinics from September 25th to October 2d, inclusive, and from October 7th to October 14th, inclusive. The clinics, about 140 in number, will be held especially for the members and guests of the Association. The Committee on Hospitals will have it for their special duty to make visitors welcome at the various institutions, and to assist as far as possible in making the clinical features available. The clinics have been so grouped that visitors may spend the entire forenoon at one hospital and the afternoon at another. Where the time of clinics overlaps the committee has, so far as possible, aimed to parallel clinics on medicine and surgery, feeling that those who are interested in surgery can put in the most of their time on that subject, while those that are interested in internal medicine need not attend the surgical clinics.

SCIENTIFIC MEDICAL JOTTINGS FROM AMERICAN TROPICAL COUNTRIES.

TWO CASES OF URETHRAL CALCULI.

El Progreso Medico of Havana for August, 1899, in the report of a recent meeting of the Sociedad de Estudios Clinicas of Havana gives the details of two cases of urethral calculi. In both there had been considerable difficulty of urination extending over long periods of time, in one from early childhood. In one of the cases a small very hard tumor presented in the perineum; in the other the diagnosis was made with a sound. The stones were crushed by a small lithotrite and the fragments removed with urethral forceps. In one of the cases, after the removal of the calculus, a stricture developed. It was dilated but recurred almost immediately. A second dilatation was no more successful, and it was found on careful examination that a partial membranous diaphragm was obstructing the urethra where the calculus had been. Division of this with a urethrotome and subsequent dilatation was followed by the prompt disappearance of all symptoms and they have not recurred.

RECOGNITION FOR CUBAN MEDICAL HEROES.

El Progreso Medico is also publishing a series of photographs and biographical sketches of the medical men who fell serving the Cuban cause during the late revolution against Spain. The August number contains a sketch of Dr. Federico de la Torre y Latte, who fell at the engagement at Las Taironas in the Province of Pinar del Rio, January 17, 1896, while bravely fulfiling his duties as a surgeon on the firing line. His conduct dur-

ing all the time of his service with the Cuban army had been marked by such self-forgetting courage and unpretentious patriotism that his death called forth from his commander a letter to his friends full of the loftiest panegyrics. Cuba does well to honor her non-combatant heroes and the medical profession is to be complimented in not allowing the memory of heroic brothers to die out.

A DISEASE SPECIAL TO MINERS.

In the *Revista de Anatomia, Pathologica y Clinicas* of Mexico for June 15, 1899, Dr. Thomas Chaves describes a disease which has been noted among the miners in the gold and silver mines at Guanajuato, Mexico. The mines are very deep, among the deepest in the world and at the same time the most productive. The disease which attacks the miners has two forms, acute and chronic. In both forms a blood change with the development of an intense anemia is the most prominent symptom. In the chronic form the progressive anemia is followed by headache, vague pains all through the body, loss of appetite, and tendency to fainting spells, while the blood picture that develops is like that of leucemia. In the acute form of the disease the first symptom is a fainting spell with which the men are taken shortly after their entrance into the mine, though they may have seemed in excellent health just before going in. The faint is followed by intense headache, rumblings in the ears, thirst, nausea, at times coughing spells and further tendency to faint. Anemia rapidly develops if the patient is not carried off by the failure of some important organ and the leucemic picture of the chronic form asserts itself.

Dr. Chaves attributes the symptoms noted to an intoxication with gases from the minerals so recently uncovered and the undergoing often, therefore, of rather rapid changes in the presence of the oxygen of the air. Analyses made of the air in the mines showed that it contained distinct traces of antimonio-arseniuretted hydrogen and sulphoseleniuretted hydrogen. At times almost 1 per cent. of each of these mixed gases was present.

[One of the mines mentioned is more than 2000 feet deep and it is to be remembered that owing to the compressibility of air, the atmosphere of a deep mine is very dense. The pressure is perhaps enough to disturb internal respiration as does working in a caisson unless precautions are taken. Whether this may not have an influence in the production of the symptoms described is worth investigating. We have in this country, besides in certain of the gold and silver mines in the copper mines an excellent opportunity to study the effect of condensation of the air at great depths on the respiration and general health of the miners. An investigation of the effects would be most interesting.—EDITOR.]

MINER'S ANGIOLEUCITIS.

In the same number of the *Revista de Anatomia, Pathologica y Clinicas* is a description of a form of angioleucitis peculiar to workers in mines. It does not occur after severe wounds nor does it follow amputations or surgical operations, but begins in a slight scratch or lacerated wound. It is always followed by suppuration for which the most successful treatment is free incision with the removal of affected glands. The constitutional symptoms of the disease are very severe. There is high fever, nausea and vomiting, followed in the worst cases by delirium and convulsions. The affection attacks the robust and healthy as well as the weak and sickly. Very often the site of the original injury does not suffer much from inflammation. Especially is this true when it is some slight injury of the fingers. In this case the lymphangitis usually begins at the wrist and spreads up the arm. Cultures of staphylococcus albus and aureus have been obtained from the pus, but there would seem to be some more virulent micro-organisms at work, very probably a pus-producing anaerobic microbe, if the usual character of the inoculation is to have its proper weight. The angioleucitis set up practically never disappears by resolution, though this termination is not infrequent in the ordinary forms of lymphangitis. In all cases in miners suppuration was looked for and did occur practically always.

ENLARGEMENT OF THE LIVER AND SPLEEN IN ANCHYLOSTOMIASIS.

This interesting parasitic disease was introduced into Brazil from Europe just as it was also brought to this country. In Brazil, however, the general neglect of sanitary precautions among workmen, in soil generally, as in mines, tunnels, brick-yards, etc., has led to the extensive spread of the disease there, so that now a number of cases of the affection are reported from various parts of the country. Dr. Pedro de Almeida Magalhaes, in the *Revista Medico de San Paulo* (a Portuguese medical journal of Saint Paul, Brazil), Anno II., No. 6 and 7, reports thirteen cases of the disease that have come under his observation. He has been struck by the fact that the liver and spleen in all of his cases could be clearly demonstrated by percussion to be enlarged. In three cases in which there was absolutely no malaria and no alcoholism in the history, this condition of enlargement of the liver and spleen was especially studied. Dr. Magalhaes thinks that it may be considered an invariable accompaniment of anchylostomiasis, at least in its severer forms. He considers that this disease is often mistaken in tropical countries for a chronic malarial cachexia and advises the careful microscopic examination of the stools in all cases of severe malaria. The characteristic eggs of the parasite betray its presence in the intestine and makes the diagnosis easy and certain.

A CASE OF FULMINANT MALARIA IN CUBA.

In *El Progreso Medico* of Havana (Anno IX., No. 2, August, 1899) there is report of a case of pernicious or fulminant malaria such as intending medical immigrants to the island may expect to see occasionally. The patient was taken with hematuria one evening, vomited blood next day and developed a temperature of 104.5° F. Icterus set in and rapidly became deeper and the patient died the next afternoon. For some hours before his death his temperature had been falling, reaching before the end 94° F. Dr. Jorge Le Roy y Cassa, who reports the case, does not believe in the administration of quinin for malaria and thinks that it is often the cause of the so-called

malarial hemoglobinuria, so none of that drug was used. Injections of Hayem's serum solution (practically normal salt solution) were made subcutaneously with the idea of washing the toxins out of the blood, but seemed to produce no effect. That the case was not one of yellow fever the autopsy and the fact that the patient was a mestizo, *i.e.*, a mixed-breed Cuban, all of whom are supposed to be immune to yellow fever, and that no yellow fever had been known to exist for a long while in the part of the country from which he came, all seem to show. The writer thinks he could also exclude the idea of this case being either the so-called severe icterus or the bilious fever of hot countries.

SOCIETY PROCEEDINGS.

NORTHWESTERN MEDICAL AND SURGICAL SOCIETY OF NEW YORK.

Stated Meeting, Held June 21, 1899.

THE President, WILLIAM STEVENS, M.D., in the Chair.

CARCINOMA OF THE LIVER.

DR. J. H. FRUITNIGHT: The case which I desire to report is interesting on account of the difficulty experienced in making a diagnosis. The patient was seen early in the spring, at which time she presented indefinite symptoms. Then came gradual emaciation and failing of the vital powers together with obstinate constipation. By excluding the diseases in which emaciation and exhaustion are the predominant symptoms, we reached the conclusion that the patient was suffering from malignant disease, and, upon examining the organs *seriatim*, we found that the left lobe of the liver extended further to the left than it should and beyond the median line, that its border was sharper than normal, and that its substance was nodular. Two eminent practitioners of this city, who were called in consultation, confirmed the diagnosis of carcinoma of the left lobe of the liver.

ABSCESS OF THE MONS VENERIS.

DR. A. M. JACOBUS: Two weeks ago I was called to see a woman whose family physician had left the city for the summer on the previous day. I found a stout woman, thirty-five years of age, weighing about 180 pounds, with an ice-bag upon the mons veneris. There was a very tender swelling in that region and the patient seemed to be suffering greatly. I was told that a year previously an abscess had appeared there which had been opened by her physician, that it had closed prematurely (as she thought), and caused blood poisoning. The swelling was very hard, twice as large as a door-knob, movable, and appeared to be a localized cellulitis with pus in the center. It was situated over the pubic region between the muscles and the skin. As the patient refused to have it opened, and as fluctuation was not distinct, I ordered the ice-bag removed and flaxseed poultices, as hot as possible, applied every hour and a half day and night, in the hope that the abscess would point and discharge spontaneously. This it did two days later, the pus which was discharged being exceedingly offensive, blood-stained, and amounting to several ounces. The patient had been a widow for five years, and had never given birth to a child. There was no history of venereal disease or of injury, excepting that some four years before she had struck herself at that point against the corner of a table. This accident, however, was not followed by any special symptoms, and it is very doubtful if it had anything to do with the present trouble. No abnormality of the pubes or pelvic viscera could be detected, and no enlargement of the inguinal glands existed. The abscess was in the fat outside of the muscular tissue, as stated, and could be lifted up, showing that it had no connection with anything else. The patient did well and the induration about the sac gradually disappeared, the sinus being kept open with gauze until the last. The case is reported because of its rarity.

DR. P. C. COLE: I saw a somewhat similar case some four weeks ago. The attending physician had made a diagnosis of general peritonitis and appendicitis, and advised the patient to go to a hospital for operation. I incised the abscess and the patient promptly recovered.

DR. S. H. DESSAU: Dr. Jacobus' case reminds me of one seen in my service while connected with the New York Dispensary, in which there was an abscess of the abdominal wall just above the umbilicus. The woman recently gave birth to a child. I believe that these abscesses are now regarded as phlegmons of the peritoneum or localized peritonitis extending through and involving the abdominal wall.

DIPHTHERIA ANTITOXIN.

DR. DESSAU: I have on previous occasions reported to this Society several cases in which I have successfully employed antitoxin in diphtheria. I wish now to report another in which the child died of heart failure on the eighth day after the first injection. I do this in order to show that I am unbiased in my estimation of the remedy. The fatal termination in this instance cannot be attributed to the antitoxin. The case was a very severe one from the beginning. The pharynx, including the tonsils, soft palate, and post-nasal space, together with both sides of the nose, were involved, and the submaxillary lymphatics on both sides were immensely swollen. Five thousand units of the antitoxin were administered in two doses, 3000 and 2000. The child improved promptly, the membrane in the throat cleared up, breathing through the nose became free, and the swelling of the lymphatic glands of the neck subsided completely, but death occurred suddenly from heart failure, as is not uncommonly the case in diphtheria not treated with antitoxin.

DR. ROBERT NEWMAN then read the paper of the evening, entitled

BOTTINI'S OPERATION AND OTHER TREATMENT OF THE ENLARGED PROSTATE.

(See page 397.)

DR. ROBERT H. GREENE: The writer of the paper having requested that we discuss the causes of prostatitis among other subjects, I will say that in 216 cases of urethritis examined by me I found more or less prosta-

titis in more than forty per cent. This would tend to show that urethritis is a very active cause of prostatitis, although, of course, it may be due to other causes, such as sexual excesses, and apparently not infrequently to indigestion, giving rise to excess of uric acid or phosphates in the urine, and causing local irritation. The local treatment of prostatitis is not an easy matter, and often does more harm than good. Attention to the general health will often result in improvement. The patient should take plenty of exercise, and attention should be given to the diet and habits of life. So far as the Bottini method of treatment is concerned, the first case recorded in America was that by Dr. Weber a year ago this winter before the Genito-Urinary Section of the Academy of Medicine. Since then the operation has been performed a number of times by Dr. Willy Meyer and a number of other men, among them Dr. Guiteras, who has read a paper upon the subject. I am familiar with Bottini's operation, for I have seen Guiteras employ it at the City Hospital in several cases. It is not difficult of performance. It apparently can be improved upon in several respects. First, in regard to the anesthetic. If cocain is depended on the patient will suffer a great deal in a large majority of cases, and it is much better to administer ether. Secondly, in regard to the batteries. Neither the street current nor the storage-battery made by the instrument-makers can be absolutely relied upon; therefore, it is best to provide two storage-batteries or to employ the street-current and have one storage battery on hand in case of necessity.

I am convinced that Bottini's operation can be performed with safety so far as danger to life is concerned; but when it comes to the results obtained this is another matter. In many of the reported cases the history has been very imperfectly recorded. It is hard to tell whether many of them were cases of true prostatic hypertrophy or not. Now, with this condition of enlarged prostate there is a state of congestion which apparently is responsible for a good deal of the enlargement which one feels with the finger in the rectum. For this reason rectal examination alone is not sufficient to determine whether or not the prostate is enlarged. This congestion is sometimes relieved by several different methods, after which there is a marked decrease in the size of the prostate on examination. To my mind, this is the effect which the Bottini operation has; neither more nor less than any other treatment, causing counter-irritation and reducing the congestion of the parts. No permanent good results apparently have as yet been obtained by the Bottini treatment.

DR. NEWMAN, in closing: I am obliged to Dr. Greene for the remarks he has made. What he says about the battery is very true; it is very difficult to get one that works well. One of my objections to the old Bottini instrument is that the platinum is too large and too soft, and requires a larger battery to heat it than can conveniently be carried about.

In regard to the causes of prostatitis, in addition to those mentioned by Dr. Greene are gonorrhea and injudicious injections of nitrate of silver into the deep urethra.

As to the results obtained by the Bottini method, I would remind Dr. Greene that not all cases are curable, for much depends upon the amount of the hypertrophy, stage of the disease, complications which may exist, and constitution of the patient. I have cured many cases of hypertrophy of the prostate with my galvanocautery sound, some of which have been reported.

REVIEWS.

TWENTIETH CENTURY PRACTICE. An International Encyclopedia of Modern Medical Science. By Leading Authorities of Europe and America. Edited by THOMAS L. STEDMAN, M.D., New York City. In Twenty Volumes. Vol. XVI. "Infectious Diseases." New York: William Wood & Co., 1899.

IN the perusal of a paper on an acute infectious disease the reader is often impressed by the scientific knowledge shown by the author rather than by the practical character of the description of the disease. This criticism can certainly not be made of the chapter devoted to lobar pneumonia in the sixteenth volume of the "Twentieth Century Practice." It is a scholarly and eminently practical contribution from the pen of Dr. A. H. Smith of New York. We have been much impressed by the excellent clinical description given therein, of the pathology and symptoms of the disease. Pneumonia is not a mere inflammation of the lungs, says Dr. Smith; it is to be regarded as an acute general toxemia depending upon a local manifestation in the pulmonary areas. A good account is given of the results thus far obtained with the antipneumococcic serum and of the difficulties which beset laboratory experimentation along this line. We can highly endorse Dr. Smith's views as to the prognostic importance of the continued accentuation of the second pulmonic sound during the course of the disease.

Professor Netter contributes a well-written and comprehensive paper on cerebrospinal meningitis. The author believes that the warm bath is a specific method of treatment in this affection, and he recommends it as such. Lumbar puncture is a diagnostic, but never a curative method. The article on dysentery is written by Professor Sodre of Rio Janeiro. Considerable evidence is collected to prove that dysentery—especially in tropical climates,—is generally due to infection by the ameba coli.

Dr. Alford Nichols of Dominica, West Indies, writes on yaws and clearly points out the difference between this disease and syphilis. The article on inflammation, by Professor Ziegler, ought, it seems to us, to have had its proper place at the beginning of the thirteenth volume of the series. The article is well written and exhaustive; we regret that lack of space prevents us from discussing some of the interesting theories advanced by the author.

The section devoted to erysipelas is from the pen of Dr. Kiliani of New York. It is concise and contains an interesting account of the methods and results obtained in treating the disease with the antistreptococcic serum. Not all writers are as optimistic as Dr. Kiliani regarding the results to be obtained with the serums as now made.

Thus Koch and Petruschky have shown that the antistreptococcic serum as now made vary greatly both in strength and in efficiency. Dr. L. B. Edwards contributes a short article on simple continued fever, and is followed by Professor Popoff of St. Petersburg, with a detailed and full description of relapsing fever. The historical section is well-written and the bacteriological description is very complete. Several excellent plates illustrate the text.

Dr. Thatcher of New York writes on the etiology and general pathology of typhoid fever, and Dr. Brannan describes the symptoms and treatment of this important disease. An exhaustive description of Eberth's bacillus, its generic characters and the methods in vogue for its isolation is given. Dr. Thatcher places rather a high value on the acid potato gelatin recommended by Elsner as an isolating medium. The pathology of the disease is well described, due importance being given to typhoid fever without intestinal lesions. The symptoms of the disease are discussed with thoroughness by Dr. Brannan. The surgical complications are enumerated, due credit being given to Professor Keen's excellent work on this subject. Special sections are devoted to typhoid fever in infancy, childhood, and old age. The principles underlying the eliminative and antiseptic treatment of the disease, of Woodbridge and of Thistle, seem, to Dr. Brannan "to be sound though the results fall short of the claims of its chief advocates." A good *résumé* of the results thus far obtained with attenuated bacterial cultures and with antityphoid serum is given. In conclusion we may say of the present volume that it is fully up to the standard of previous ones, and reflects credit alike upon the editor and the contributors.

PRACTICAL DIAGNOSIS. The Use of Symptoms in the Diagnosis of Disease. Fourth edition. By HOBART AMORY HARE, M.D., B.Sc., Professor of Therapeutics in the Jefferson Medical College of Philadelphia, etc. Illustrated. Philadelphia and New York: Lea Brothers & Co., 1899.

THE fourth edition of this popular work does not differ much from its predecessors in the text, although we note some additions made necessary especially by the advance in laboratory methods of diagnosis. The newer methods of serum diagnosis are fully set forth in this edition and the essential directions for their application are given. The book abounds, as heretofore, in points of the greatest practical value in the establishment of a clinical diagnosis. Several new illustrations and photographs have been added. Of its kind, Dr. Hare's book is certainly unique in its combination of the eminently practical and the necessarily theoretical elements of clinical diagnosis.

THE NEWER REMEDIES. A Reference Manual for Physicians, Pharmacists and Students. By VIRGIL COBLENTZ, A.M., Ph.D., Professor of Chemistry and Physics in the New York College of Pharmacy. Third edition. Philadelphia: P. Blakiston's Sons & Co., 1899.

THE author has included in this little book a consideration of the main synthetic compounds which have appeared since the last edition. As far as has been possible, the chemic composition of the new drugs has been given. The silver compounds attract attention by their number and it is evident that the number of intestinal antiseptics has increased wonderfully. The book is certainly a valuable one for reference to the multiple remedies which the skill of the chemist and the enterprise of the manufacturer is constantly providing.

THE PHILOSOPHY OF MEMORY AND OTHER ESSAYS. By D. T. SMITH, M.D., Lecturer on Medical Jurisprudence in the University of Louisville. Louisville: John B. Morton & Co., 1899.

IN this collection of essays the author attributes too much power, it seems to us, to the forces of Nature in the evolution of memory, omitting factors in its development which are recognized by naturalists as playing important rôles. His essays on "The Functions of the Fluid Wedge" and "The Laws of Riverflow," are certainly extreme in their position and we confess we are unable to criticise them. The essays certainly make interesting reading.

HANDY BOOK OF MEDICAL PROGRESS; a Lexicon of the Recent Advances in Medical Science. By CHARLES WARRENNE ALLEN, M.D., Consulting Dermatologist to the Randall's Island Hospitals, etc., and JACOB SOBEL, A.B. M.D., Dermatological Assistant to the Good Samaritan Dispensary. New York: William Wood & Company, 1899.

ONE can hardly be expected to take this little book seriously. Its title is a misnomer and its plan is a perversion. It purports to be a somewhat more than dictionary explanation of the names and titles of new medical data, alphabetically arranged. In glancing through the pages one will meet, here and there, definitions of a few new names of recently described signs, symptoms and diseases. He will be more apt to encounter paragraphs on titles other than new, relating to subjects by no means recent, and described in words that might fit into a text book a dozen years old; and he will be just as apt to find, chosen with the same inscrutable arbitrariness, descriptions of numerous proprietary preparations. Even in these the work is incomplete.

MATERIA MEDICA. THERAPEUTICS. Medical Pharmacy, Prescription-writing, and Medical Latin. By WILLIAM SCHLEIF, Ph.G., M.D., Instructor in Pharmacy in the University of Pennsylvania. Philadelphia and New York: Lea Brothers & Co., 1899.

THIS handy volume which, from its binding, one might mistake for a collection of poems, is one of the publishers' series of pocket text-books, edited by Dr. Bern B. Gallaudet of this city. They represent, apparently, an amplification of the excellent series of quiz-books published by the same firm and also edited by Dr. Gallaudet.

The work presents no unusual feature. It is a condensation of the essential facts of our materia medica, conveniently arranged. It is scarcely a compliment to the medical profession to print on the title-pages of these

pocket-works and of quiz-books: "A Manual for Students and Practitioners." While some practitioners may from time to time find use for so condensed a reference, they are more apt to turn to standard works for their information. These little manuals are written especially for students, among whom they must find their greatest sale.

PULMONARY TUBERCULOSIS: Its Modern Prophylaxis and the Treatment in Special Institutions and at Home. Alvarenga prize essay of the College of Physicians of Philadelphia for 1898. Revised and enlarged. By S. A. KNOPF, M.D., with descriptions and illustrations of the most important sanatoria of Europe, the United States and Canada. Philadelphia: P. Blakiston's Son & Co., 1899.

THIS work needs no apology for its existence; if for no other reason, the encouragement to be derived from the hopefulness and earnestness that stamp its pages is decidedly wholesome. But it has, beyond this, an intrinsic scientific merit. It is thorough, but not exhaustive; convincing without being argumentative; and original, but carefully avoids all that is not proven.

The author at the outset begs us not to despair in the absence of specific treatment. With the means we have at our disposal tuberculosis is a preventable disease, and, especially in its pulmonary forms, a curable one. Nor is its curability as infrequent or as difficult as is generally believed. The author then devotes himself to the exposition of those methods of treatment best adapted to the cure of phthisis. These, he teaches, are the hygienic, dietetic, respiratory (gymnastic), aero- and hydrotherapuetic and medicinal—usually most successful when carried on in a well-conducted sanatorium, but of paramount importance and of the greatest value even at home.

Both at home and in a sanatorium, careful and constant medical supervision is absolutely essential. To climatic influences the author relegates a secondary rôle, as being of less importance than institutional and hygienic influences. Nevertheless, climatic treatment forms a valuable and often indispensable adjuvant. Several pages are devoted to it; from which the conclusions are deduced that while some climates may be posted as harmful to certain classes of phthisical patients, no climate can be assumed to be beneficial to any individual case without actual trial.

A large part of the book is devoted to illustrated descriptions of the most important sanatoria of Europe and America. A supplementary chapter outlines the author's plans of an ideal sanatorium.

The social problems which tuberculosis entails are succinctly treated of. The public measures essential to the prophylaxis and extermination of human and bovine tuberculosis, as here outlined, are neither complicated nor extremely difficult to carry out. The importance of national regulations—another plea for a national health board—is made very plain. Sanitary tenements for the poor is another prophylactic institution referred to.

The work is not clinical. It avoids an excess of statistics, adding thus to its simplicity and interesting style. It will appeal, as it is indeed dedicated, to all hygienists, and public men, as well as to physicians—for, in matters of public health, the latter can only insure what the former must help to secure.

THERAPEUTIC HINTS.

Treatment of Certain Manifestations of Grip.—Inflammations of the mouth, pharynx, nose, or ears occurring in the course of grip should be immediately and vigorously combated, according to LEMOINE of Lille, as they may otherwise give rise to grave complications. For aphthous stomatitis he recommends irrigation twice a day with Labarraque solution (five per cent.), introducing the irrigating tube nearly to the palate in order to cleanse the entire buccal mucosa. The stomatitis is thus cleared up generally in two days. Similar treatment is used in case of tonsillitis and pharyngitis. For children who object to the taste of the Labarraque solution the following may be substituted:

℞ Ac. lactici . . . . . *m.* xl
Ol. menthæ piper. . . . . gtt. x
Aquæ . . . . . ʒ viii.
M. Sig. For irrigation.

When there is a tendency to tonsillar suppuration the tonsils and pillars of the fauces should be thoroughly swabbed also with the following:

℞ Ac. salicylici . . . gr. viii–xvi
Spiritus . . . . . q. s. ft. sol.
Adde:
Glycerini . . . . . ℥ i
Aquæ . . . . . ℥ ii.
M. Sig. External use.

For rhinitis a spray of liquid vaselin containing menthol (two per cent.) is employed, treating the nostrils alternately, and afterward a small quantity of ordinary vaselin containing menthol (two and one-half per cent.) is placed at the opening of both nostrils.

For otitis a resorcin solution (two per cent.) is instilled into the external auditory canal, this being the best antiseptic for the purpose in cases of grip. It may prevent suppuration.

Applications for Burns.—

Of first degree:
℞ Zinci oxidi . . . . gr. lxxx
Magnesii carb. . . . ʒ iiss
Ichthyol . . . . *m.* xv–xxx.
M. Sig. External use.

Of second degree:
℞ Zinci oxidi . . . . gr. lxxx
Cretæ prep., Pulv. amyli, Ol. lini, Aq. calcii } aa. . . . ʒ iiss
Ichthyol . . . . . *m.* xv–lxv.
M. Ft. unguentum. Sig. External use. Change dressing every twenty-four hours.

If inflammatory symptoms are marked cover the affected area first with the powder and then apply the ointment.—*Leistikow.*